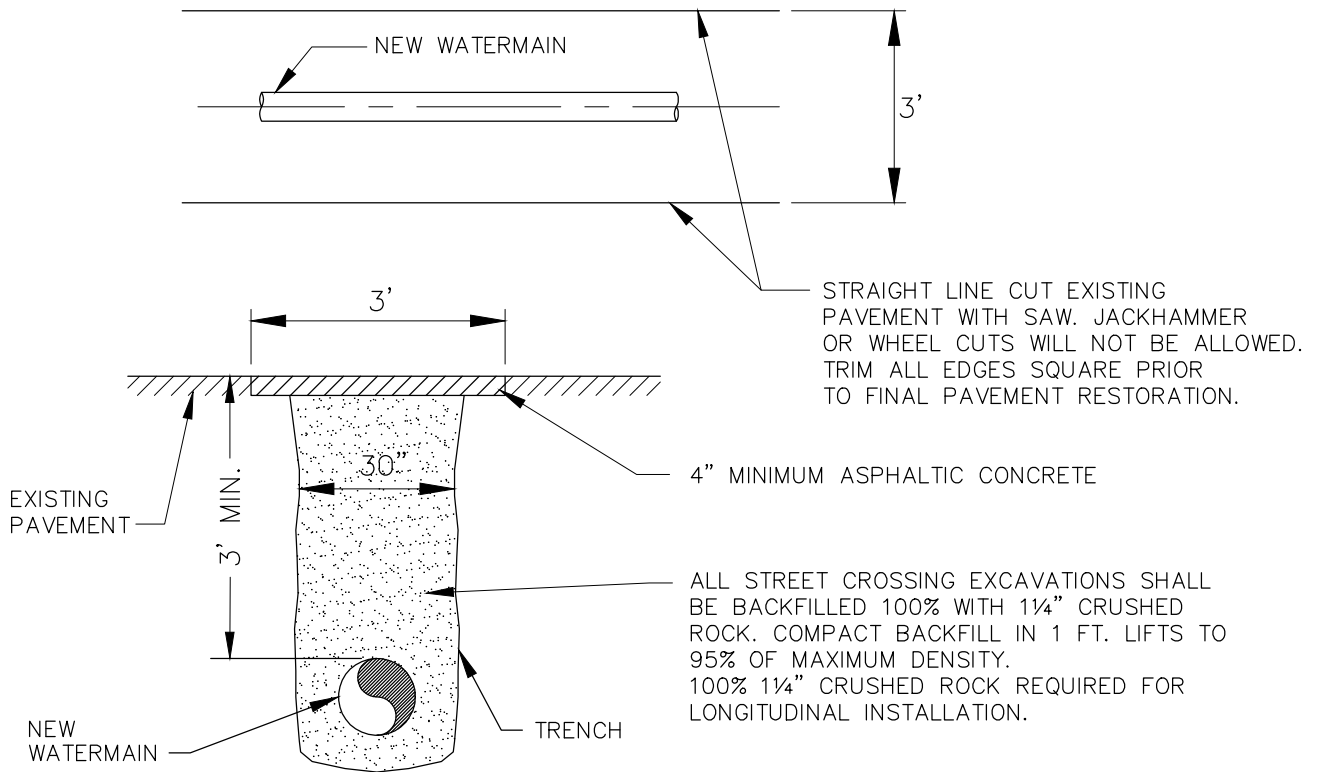
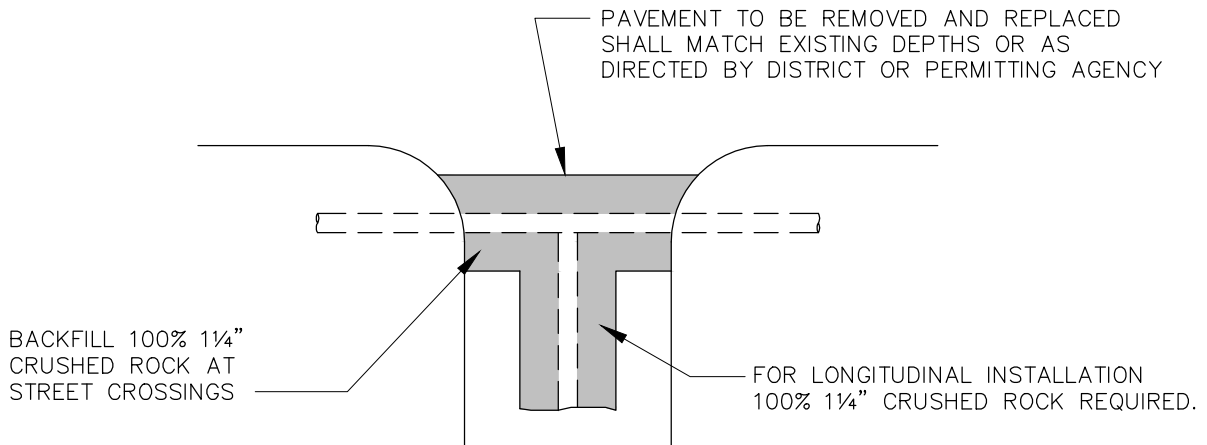


NOTES:

1. NATIVE MATERIAL NOT APPROVED FOR BACKFILL.
2. NO RECYCLED MATERIAL ALLOWED.



SECTION

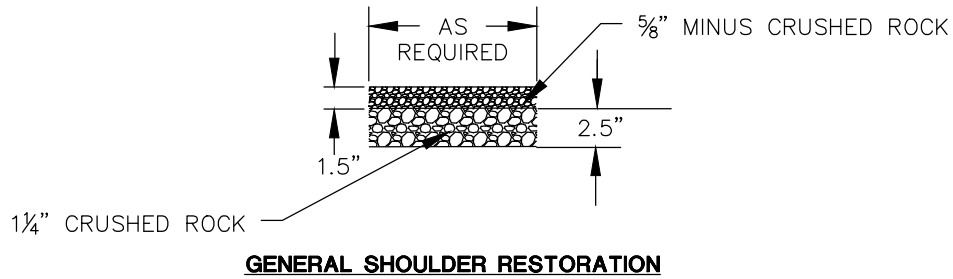
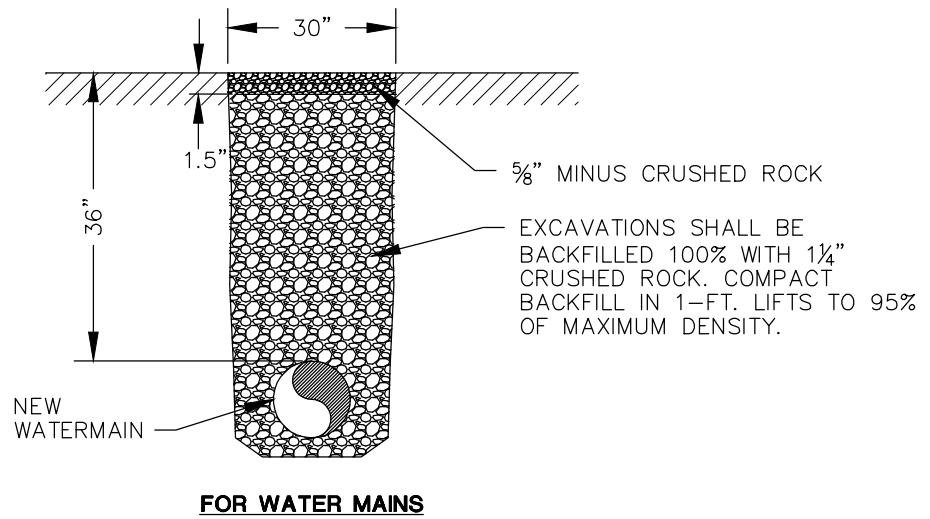
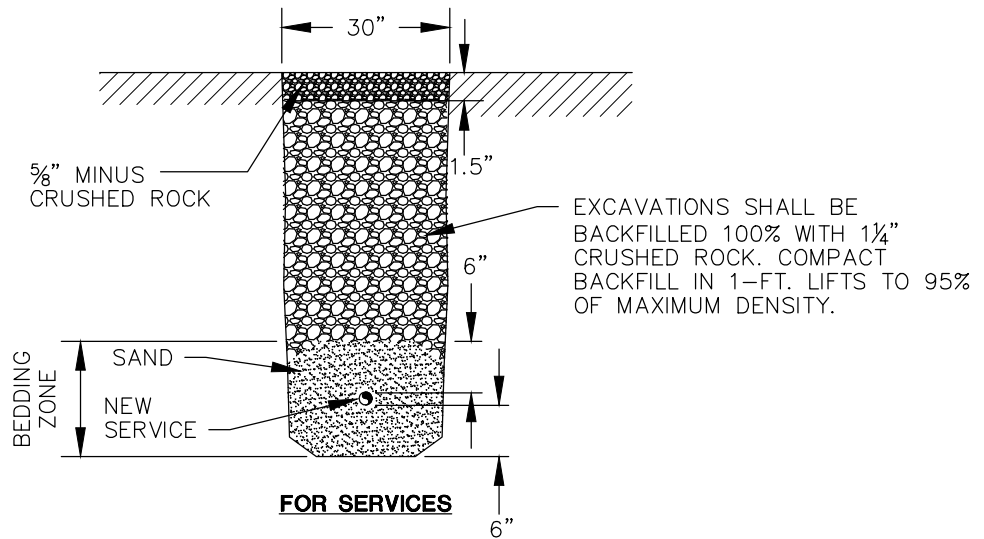
PAVEMENT RESTORATION

SHEET 1 OF 2

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-01.dwg USER: Peter Paulsen PLOTTING DATE: 12/28/2021 11:03 AM

<h2>STANDARD DETAIL RESTORATION</h2>					
PLOTTING DATE	DRAWN	CHECKED	APPROVED	DISTRICT	
12-27-21				20	
PLOTTING SCALE	FILE NAME	DATE APPROVED		DWG. NO.	
NTS	W-DTL-01			20	W-01

FILE NAME: L:\CAD\DETAILS\Districts\WD_20\Std_Details\W-DTL-01.dwg
 PLOTTING DATE: 12/28/2021 11:03 AM USER: Peter Poulsen



GRAVEL SHOULDER RESTORATION

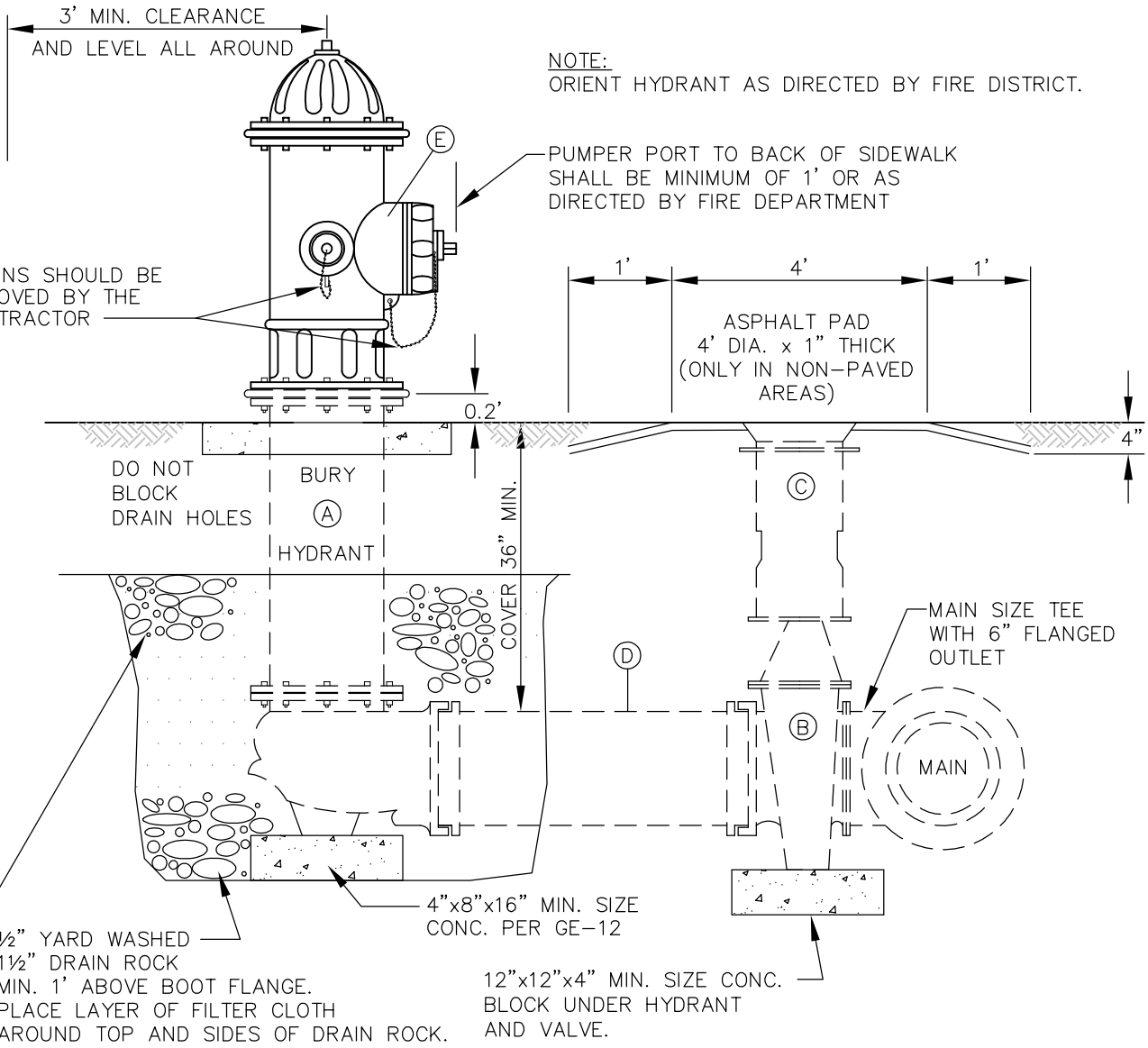
SHEET 2 OF 2

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STANDARD DETAIL GENERAL RESTORATION				
PLOTTING DATE 12-27-21	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-01	DATE APPROVED		

DWG. NO. W-01(2)

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-02.dwg
 PLOTTING DATE: 4/16/2021 11:32 AM
 USER: Peter Poulsen



- A. 1-5 1/4" MUELLER CENTURION 250, M&H 929 OR M&H 129 HYDRANT WITH 2-2 1/2" N.S.T. AND 1-4" SEATTLE STANDARD THREAD-M.J. INLET, WITH LUGS, BRASS SUB-SEAT AND STORTZ ADAPTER.
- B. 1-AUXILIARY GATE VALVE: 6" AWWA C509, RESILIENT SEAT, "O" RING STEM SEAL, M.J.xFL, WITH LUGS.
- C. 1-TWO-PIECE CAST IRON VALVE BOX WITH LID STAMPED "WATER".
- D. 1-6" DUCTILE IRON CLASS 52 CEMENT-LINED PIPE, LENGTH TO FIT. WHERE MORE THAN ONE LENGTH OF PIPE IS REQUIRED, CONNECT PIPES WITH MECHANICAL JOINT SLEEVE, RESTRAIN PIPE AND SLEEVE WITH MEGALUG RESTRAINERS, OR FIELD-LOK GASKETS.
- E. 5" X 4" FEMALE SEATTLE STANDARD THREAD RIGID STORZ ADAPTER WITH ALL CAPS AND CHAINS OR CABLES. ADAPTER MATERIAL TO BE ANODIZED ALUMINUM.

NOTES:

- 1. FIRE HYDRANT EXTENSION, IF REQUIRED.
- 2. FIRE HYDRANT TO BE PAINTED WITH TWO COATS OF SHERWIN WILLIAMS SHER-KEM FAST DRY METAL FINISHING ENAMEL, COLOR 8156-70319 FW SAFETY YELLOW.
- 3. ALL HYDRANT RUNS PIPE JOINTS SHALL BE RESTRAINED. USE MEGALUG JOINT RESTRAINTS AND LOCKING GASKETS OR RESTRAINED JOINT PIPE.

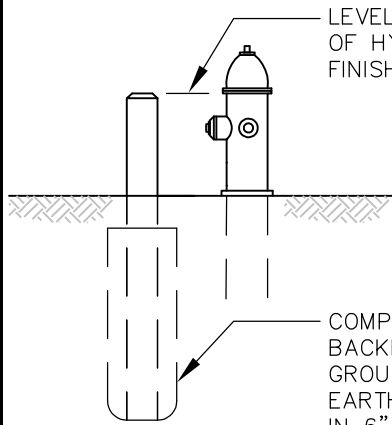
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STANDARD DETAIL					
SHORT SIDE					
FIRE HYDRANT ASSEMBLY					
PLOTTING DATE	DRAWN	CHECKED	APPROVED	DISTRICT	
4-16-21	LC	PP			
PLOTTING SCALE	FILE NAME	DATE APPROVED		DWG. NO.	
NTS	W-DTL-02			W-02	

20

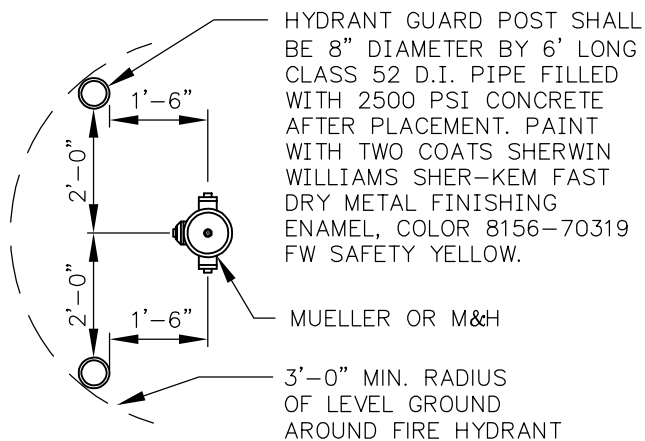
DWG. NO. W-02



LEVEL WITH BONNET FLANGE OF HYDRANT OR 2'-6" ABOVE FINISHED GRADE

COMPACTED CRUSHED ROCK BACKFILL TO 6" FROM GROUND WHERE SPECIFIED. EARTH BACKFILL COMPACTED IN 6" LAYERS ELSEWHERE.

ELEVATION



HYDRANT GUARD POST SHALL BE 8" DIAMETER BY 6' LONG CLASS 52 D.I. PIPE FILLED WITH 2500 PSI CONCRETE AFTER PLACEMENT. PAINT WITH TWO COATS SHERWIN WILLIAMS SHER-KEM FAST DRY METAL FINISHING ENAMEL, COLOR 8156-70319 FW SAFETY YELLOW.

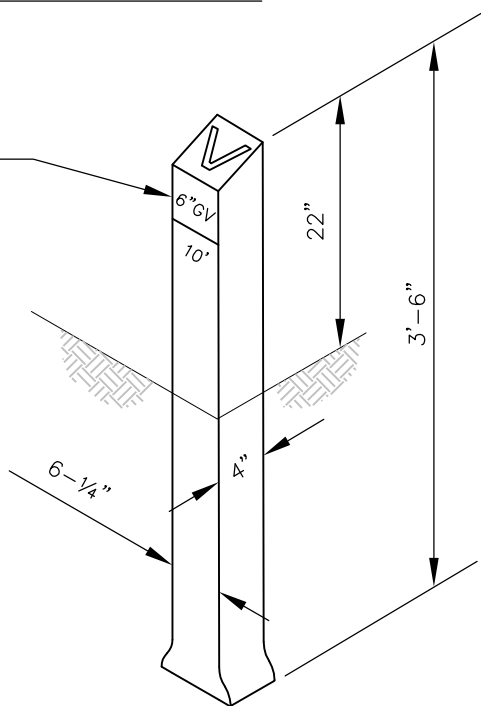
MUELLER OR M&H

3'-0" MIN. RADIUS OF LEVEL GROUND AROUND FIRE HYDRANT

PLAN

FIRE HYDRANT GUARD POST

VALVE MARKER POST SHALL BE EQUAL TO FOG-TITE METER CO. PAINT SHALL BE SAME AS FIRE HYDRANT. PAINT DISTANCE FROM THE VALVE MARKER TO THE VALVE ON THE POST WITH NEATLY STENCILED BLACK ENAMEL NUMBERS, 2" IN HEIGHT.



VALVE MARKER POST

NOTES:

1. GUARD POSTS TO BE INSTALLED ONLY AS DIRECTED BY KING COUNTY WATER DISTRICT NO. 20.
2. VALVE MARKERS TO BE USED FOR BLOW OFF AND MAINLINE VALVES OUTSIDE PAVED AREAS.

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-03.dwg

USER: Peter Paulsen

PLOTTING DATE: 2/3/2021 1:34 PM



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**STANDARD DETAIL
FIRE HYDRANT GUARD POST
AND VALVE MARKER POST**

PLOTTING DATE 4-16-21	DRAWN LC	CHECKED PP	APPROVED	DISTRICT 20
PLOTTING SCALE NTS	FILE NAME W-DTL-03	DATE APPROVED		

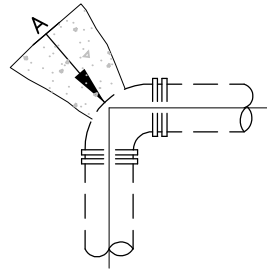


DWG. NO. W-03

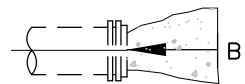
THRUST BLOCK - TABLE

MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL SQUARE FEET

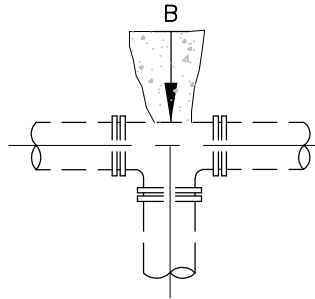
PIPE SIZE	A	B	C	D	E	X (100 PSI)
4"	3	2	2	2	2	NONE
6"	4	4	2	2	2	NONE
8"	7	6	4	2	2	4
10"	11	10	6	3	2	6
12"	16	14	9	5	3	9
14"	22	19	12	6	3	12
16"	29	25	16	8	4	16
18"	36	31	20	10	5	20
20"	45	39	24	13	6	24
22"	54	47	29	15	8	29
24"	64	56	35	18	9	35



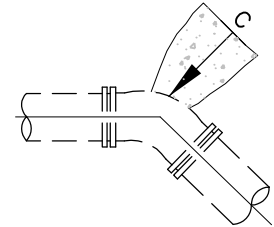
90° BEND



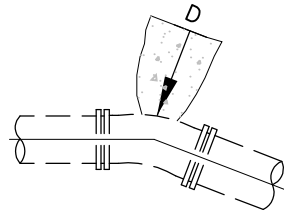
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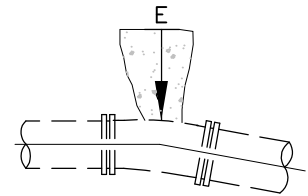
TEE



45° BEND



22 1/2° BEND

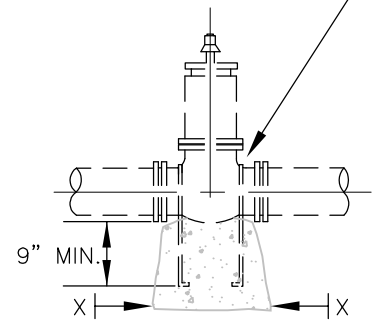


11 1/4° BEND

NOTES:

1. BEARING AREA CONCRETE THRUST-BLOCK BASED ON 200 PSI PRESSURE AND SAFE SOIL BEARING LOAD OF 2000 POUNDS PER SQUARE FOOT.
2. AREAS MUST BE ADJUSTED FOR OTHER SIZE PIPE, PRESSURES & SOIL CONDITIONS.
3. CONCRETE BLOCKING SHALL BE CAST IN PLACE & HAVE MINIMUM OF 1¼ SQUARE FOOT BEARING AGAINST THE FITTING AND BE POURED AGAINST FIRM UNDISTURBED SOIL.
4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY & SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING JOINT.
5. CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.
6. CONTRACTOR TO PROVIDE 4 MIL MIN. THICKNESS POLYETHYLENE SHEET BETWEEN CONCRETE BLOCK AND FITTING.
7. 2X2X3 HALF-SIZE ECOLOGY BLOCKS MAY BE SUBSTITUTED AS APPROVED BY THE DISTRICT.

- 2 - 1/2" DIA. RODS FOR 10" SIZE & SMALLER
- 2 - 1" DIA. RODS LARGER THAN 10" SIZE



GATE VALVE

NOTES:

ADDITIONAL BLOCKING MUST BE PROVIDED IF GATE VALVE IS AT END OF LINE DURING TESTING.

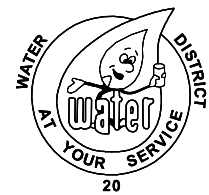
FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-04.dwg

USER: Peter Paulsen

PLOTING DATE: 3/6/2019 10:31 AM

STANDARD DETAIL HORIZONTAL CONCRETE BLOCKING

PLOTTING DATE 3-06-19	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-04	DATE APPROVED		



DWG. NO. W-04

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-05.dwg
 USER: Peter Poulsen
 PLOTTING DATE: 3/6/2019 10:31 AM

VERTICAL BLOCKING
 FOR 11 1/4°-22 1/2°-30° BENDS

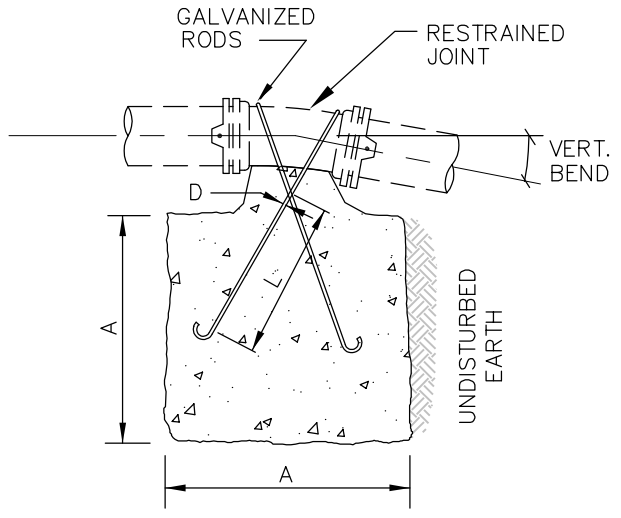
PIPE SIZE	V B	CU FT	A	D	L
4"	11 1/4°	8	2.0'	3/4"	1.5'
	22 1/2°	11	2.2'		2.0'
	30°	17	2.6'		
6"	11 1/4°	11	2.2'	3/4"	2.0'
	22 1/2°	25	2.9'		
	30°	41	3.5'		
8"	11 1/4°	16	2.5'	3/4"	2.0'
	22 1/2°	47	3.6'		
	30°	70	4.1'	3/4"	2.5'
12"	11 1/4°	32	3.2'	3/4"	2.0'
	22 1/2°	88	4.5'	7/8"	3.0'
	30°	132	5.1'		
16"	11 1/4°	70	4.1'	7/8"	3.0'
	22 1/2°	184	5.7'	1 1/8"	4.0'
	30°	275	6.5'	1 1/4"	
20"	11 1/4°	91	4.5'	7/8"	3.0'
	22 1/2°	225	6.1'	1 1/4"	4.0'
	30°	330	6.9'	1 3/8"	4.5'
24"	11 1/4°	128	5.0'	1"	3.5'
	22 1/2°	320	6.8'	1 3/8"	4.5'
	30°	480	7.9'	1 5/8"	5.5'

VERTICAL BLOCKING FOR 45° BENDS

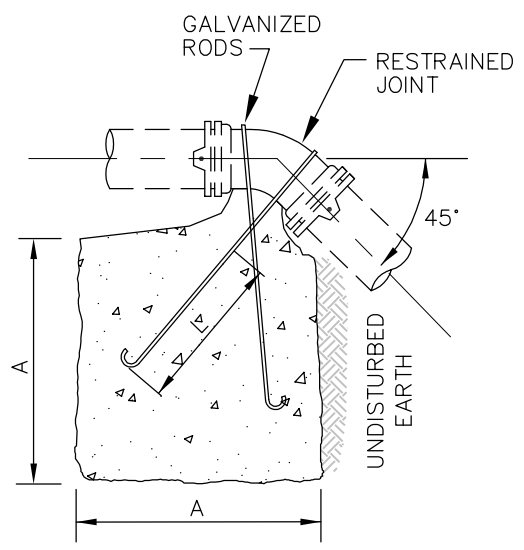
PIPE SIZE	V B	CU FT	A	D	L
4"	45°	30	3.1'	3/4"	2.0'
6"		68	4.1'		
8"		123	5.0'		
12"		232	6.1'	3/4"	2.5'
16"		478	7.8'	1 1/8"	4.0'
20"		560	8.2'	1 1/4"	
24"		820	9.4'	1 3/8"	4.5'

NOTES:

1. CONCRETE BLOCKING BASED ON 200 PSI PRESSURE AND 2500 PSI CONCRETE.



VERTICAL BLOCKING
 FOR 11 1/4°, 22 1/2°, & 30° BENDS



VERTICAL BLOCKING
 FOR 45° BENDS

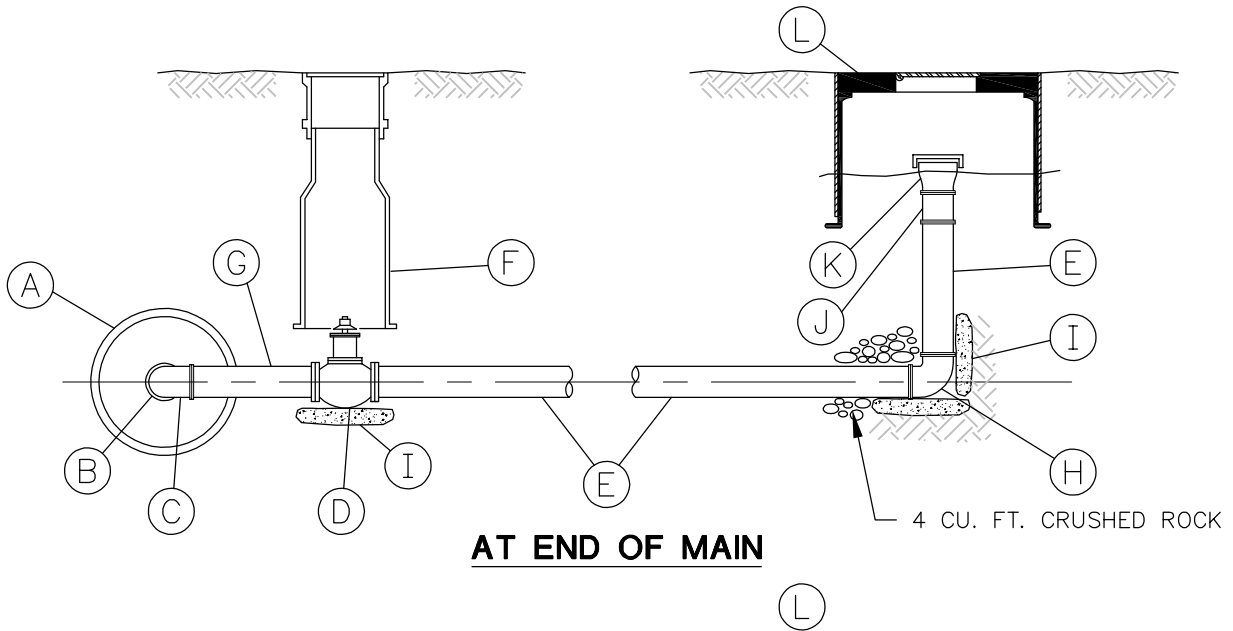

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STANDARD DETAIL
VERTICAL
CONCRETE BLOCKING

PLOTTING DATE 3-06-19	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-05	DATE APPROVED		DISTRICT


 WATER DISTRICT
 AT YOUR SERVICE
 20
DWG. NO. W-05

FILE NAME: L:\CAD\DETAILS\Districts\WD_20\Std_Details\W-DTL-06.dwg
 USER: Peter Poulsen
 PLOTTING DATE: 4/16/2021 11:37 AM



AT END OF MAIN

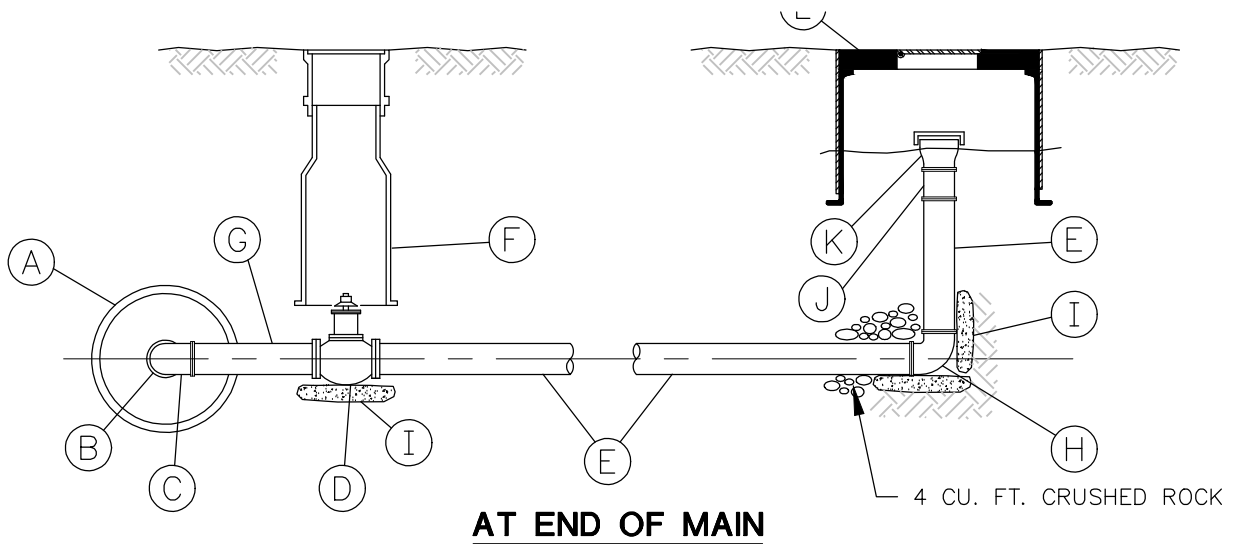
MARK	QUANTITY	ITEM DESCRIPTION
A	1	MAIN SIZE X 2' TAPPING TEE
B	1	2" CLOSE NIPPLE - BRASS
C	1	2" 90° ELBOW - THREADED - BRASS
D	1	2" GATE VALVE - RESILIENT SEAT
E	2	2" GALV. IRON PIPE - LENGTH AS REQUIRED
F	1	VALVE BOX
G	1	2" BRASS PIPE - 12" TO 18" LONG; INSTALL SWING JOINT IF REQUIRED
H	1	2" 90° ELBOW WITH 1/4" DRAIN HOLE - THREADED - GALV.
I	3	CONCRETE THRUST BLOCK - POURED IN PLACE
J	1	2" ADAPTER - F.I.P. x F.I.P. - GALV.
K	1	2" M.I.P. x 2 1/2" M.I.P. HOSE CONNECTION AND 2 1/2" CAP
L	1	MID-STATES METER BOX AND LID 1324-18

**STANDARD DETAIL
BLOW-OFF ASSEMBLY**

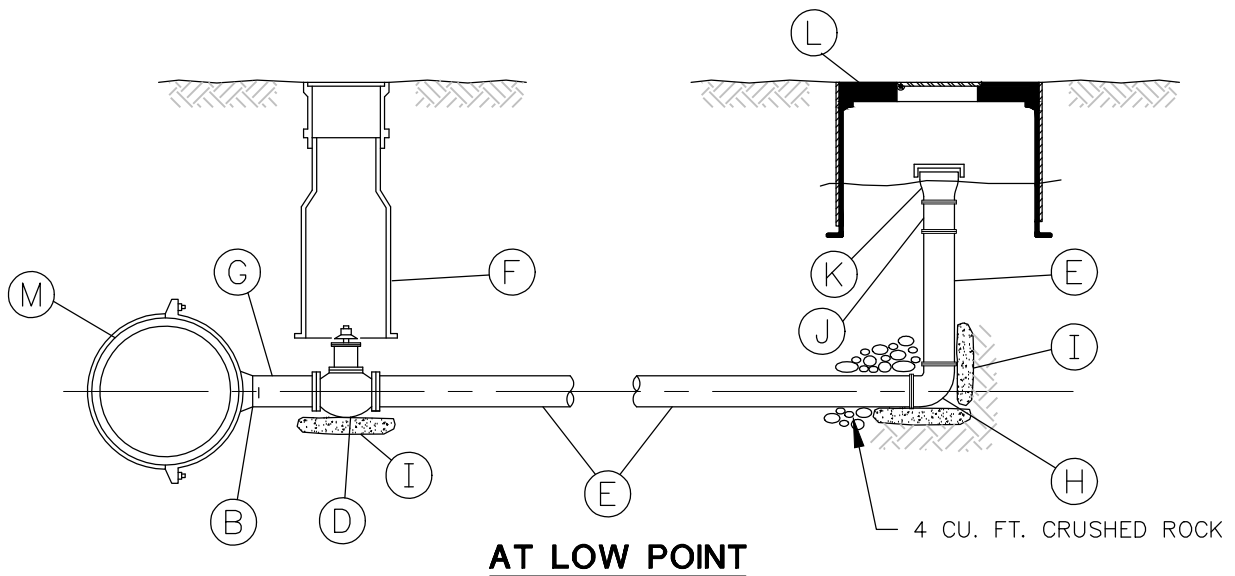
PLOTTING DATE 4-16-21	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME	W-DTL-06		DATE APPROVED

20

DWG. NO.	W-06
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AT END OF MAIN



AT LOW POINT

FILE NAME: L:\CAD\DETAILS\Districts\W-06\Std Details\W-DTL-06.dwg
 USER: Peter Paulsen
 PLOTTING DATE: 4/16/2021 11:37 AM

MARK	QUANTITY	ITEM DESCRIPTION
A	1	MAIN SIZE X 2' TAPPING TEE
B	1	2" CLOSE NIPPLE - BRASS
C	1	2" 90° ELBOW - THREADED - BRASS
D	1	2" GATE VALVE - RESILIENT SEAT
E	2	2" GALV. IRON PIPE - LENGTH AS REQUIRED
F	1	VALVE BOX
G	1	2" BRASS PIPE - 12" TO 18" LONG; INSTALL SWING JOINT IF REQUIRED
H	1	2" 90° ELBOW WITH 1/4" DRAIN HOLE - THREADED - GALV.
I	3	CONCRETE THRUST BLOCK - POURED IN PLACE
J	1	2" ADAPTER - F.I.P. x F.I.P. - GALV.
K	1	2" M.I.P. x 2 1/2" M.I.P. HOSE CONNECTION AND 2 1/2" CAP
L	1	MID-STATES METER BOX AND LID 1324-18

STANDARD DETAIL BLOW-OFF ASSEMBLY

PLOTTING DATE 6-8-21	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-06	DATE APPROVED		

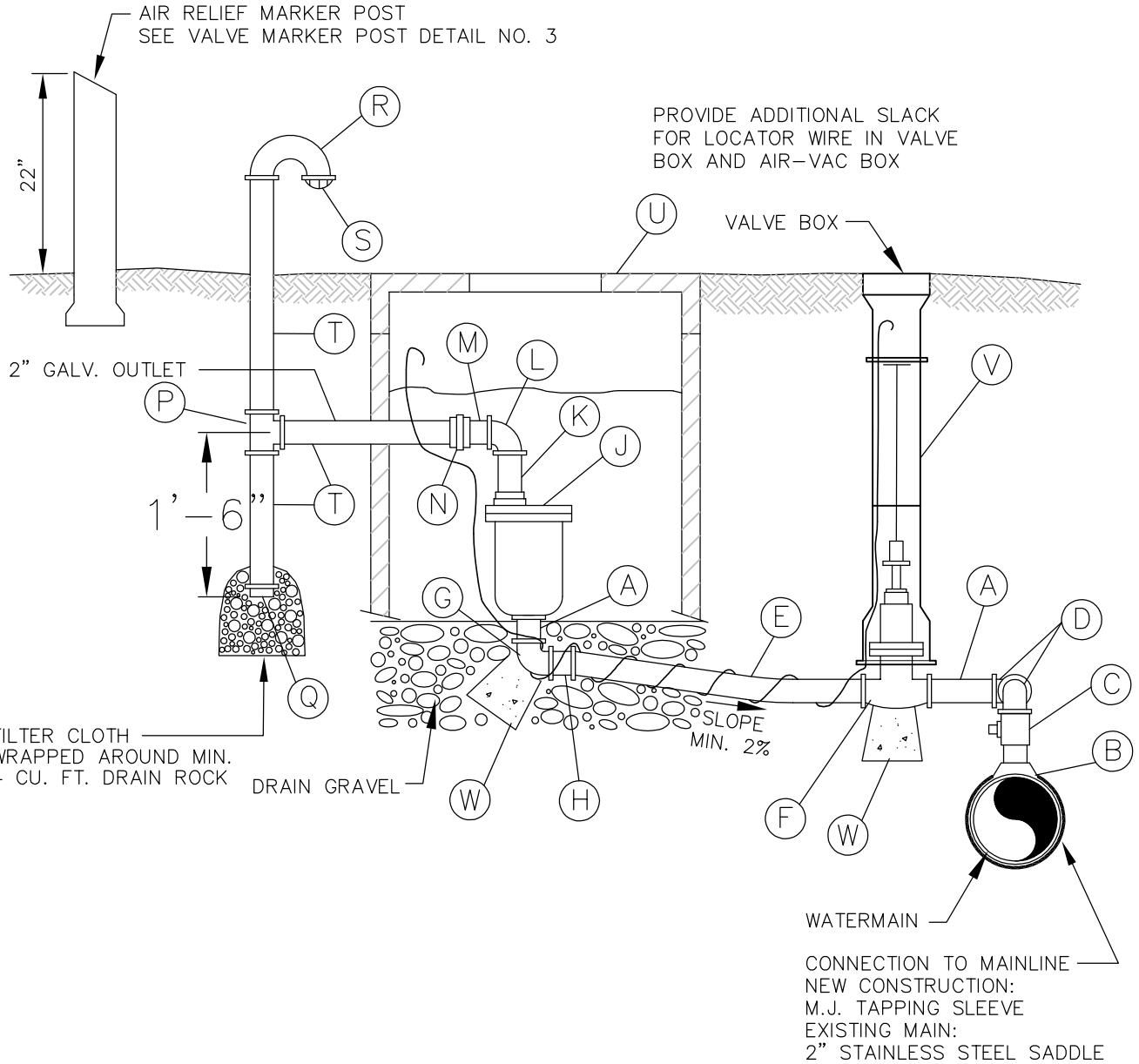
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DWG. NO. W-06

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-07&08.dwg

USER: Peter Paulsen

PLOTTING DATE: 4/16/2021 1:02 PM



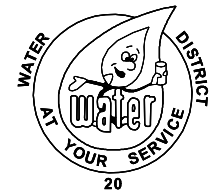
SHEET 1 OF 2



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STANDARD DETAIL AIR VACUUM AND RELIEF VALVE ASSEMBLY

PLOTTING DATE 4-16-21	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-07&08		DATE APPROVED	



DWG. NO. W-07

AIR AND VACUUM RELIEF MATERIAL

MARK	QUANTITY	ITEM DESCRIPTION
A	2	2" BRASS NIPPLE, LENGTH AS REQUIRED
B	1	M.J. TAPPING SLEEVE ON NEW MAIN OR FORD DOUBLE STRAP STAINLESS STEEL SADDLE
C	1	2" FORD CORP STOP FB1600 AWWA x F.I.P.
D	2	2" BRASS 90° STREET ELBOW (2 REQUIRED)
E	1	2" HDPE DR 9 CTS 200 PSI ASTM D2737 WITH 14 GAUGE LOCATING WIRE
F	1	2" RESILIENT SEAT GATE VALVE WITH 2" OPERATING NUT AND VALVE BOX
G	1	2" BRASS 90° BEND F.I.P. x F.I.P.
H	1	2" BRASS ADAPTER FORD C84 PACK x MIP
J	1	2" APCO AIR-VAC VALVE 145C
K	1	2" GALV. IRON PIPE - LENGTH = 6" OR LENGTH NEEDED
L	1	2" GALV. IRON 90° ELBOW
M	1	2" GALV. NIPPLE, LENGTH = 3"
N	1	2" GROUND JOINT UNION, GRINNEL FIG. 463
P	1	2" GALV. TEE
Q	1	2" GALV. CAP, WITH 1/8" WEEP HOLE FOR DRAINAGE
R	1	2" GALV. RETURN BEND, OPEN PATTERN, PAINT BLUE ABOVE SUBGRADE
S	1	2" BEEHIVE STRAINER
T	3	2" GALV. IRON PIPE, LENGTH AS REQUIRED, PAINT BLUE ABOVE SUBGRADE
U	1	MID-STATES METER BOX 1730-18 WITH LID
V	1	VALVE BOX WITH LID
W	2	4"x4"x8" BRICK AGAINST UNDISTURBED SOIL

SHEET 2 OF 2

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-07&08.dwg
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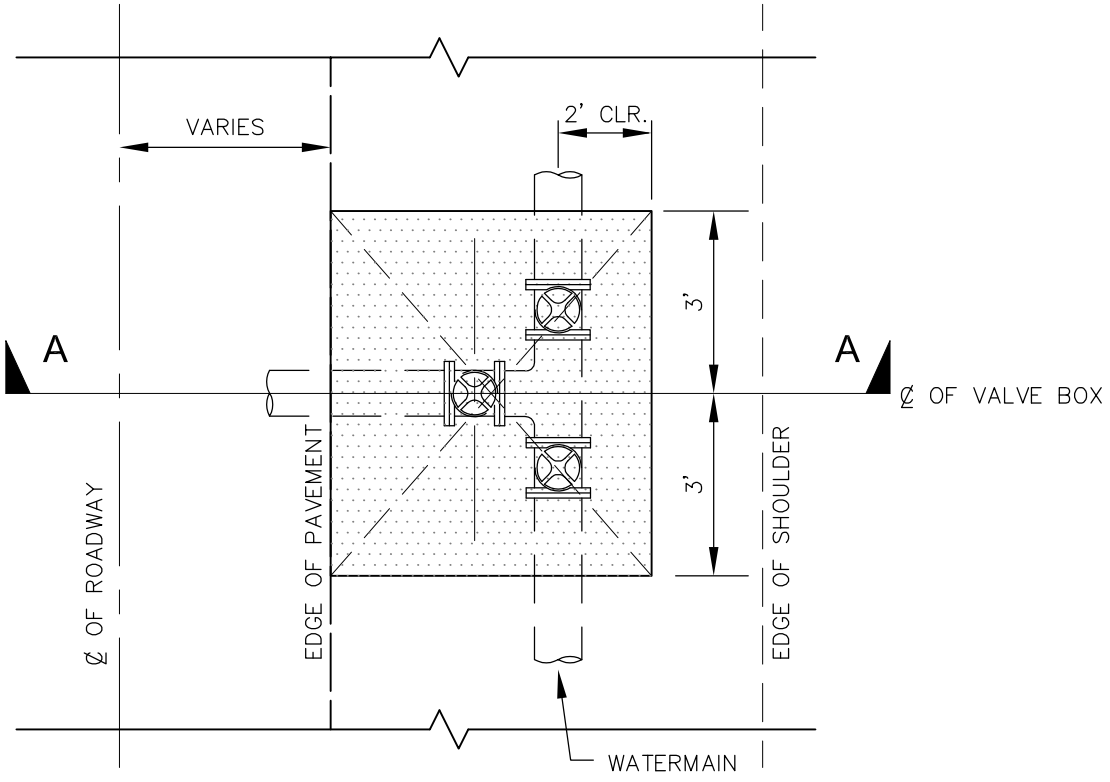
STANDARD DETAIL AIR VACUUM AND RELIEF VALVE ASSEMBLY

PLOTTING DATE 4-16-21	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-07&08	DATE APPROVED		

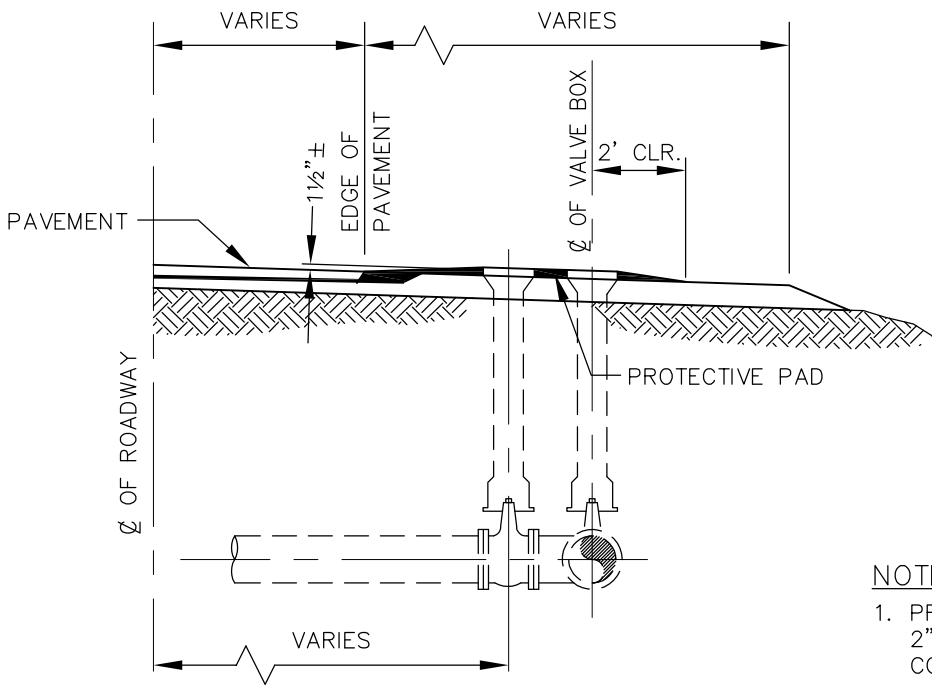


DWG. NO. W-08

PLOTTING DATE: 3/6/2019 10:31 AM
 USER: Peter Paulsen
 FILE NAME: L:\CAD\DETAILS\Districts\WD_20\Std_Details\W-DTL-09.dwg



PLAN



SECTION A-A

NOTES:

1. PROTECTIVE PAD SHALL BE 2" CLASS 'B' ASPHALTIC CONCRETE.
2. TOE OF PROTECTIVE PAD SHALL MATCH ADJACENT GRADE.

**STANDARD DETAIL
VALVE BOX PROTECTIVE PAD**

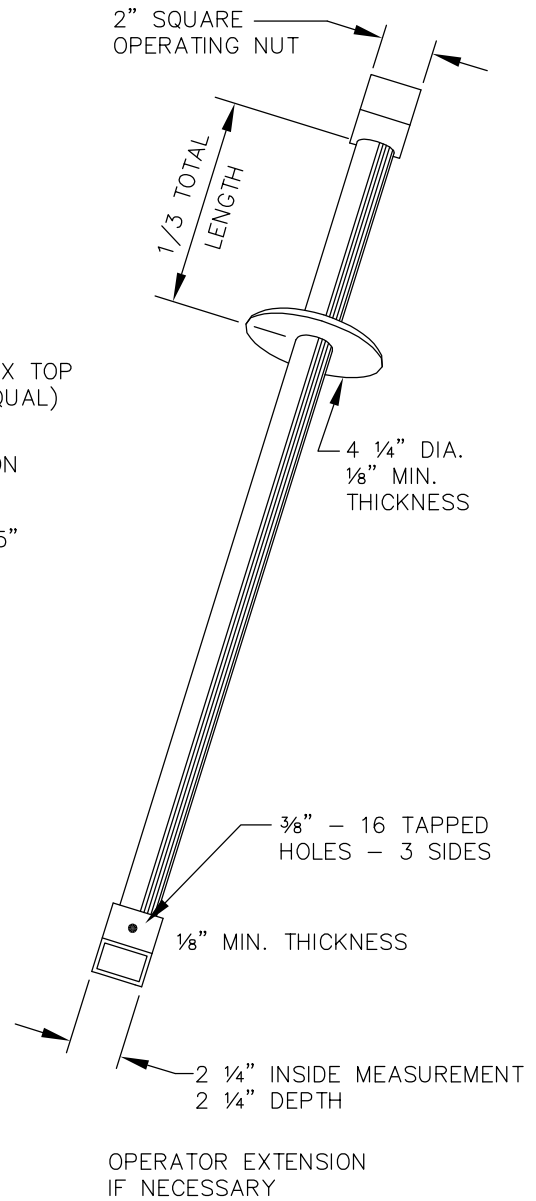
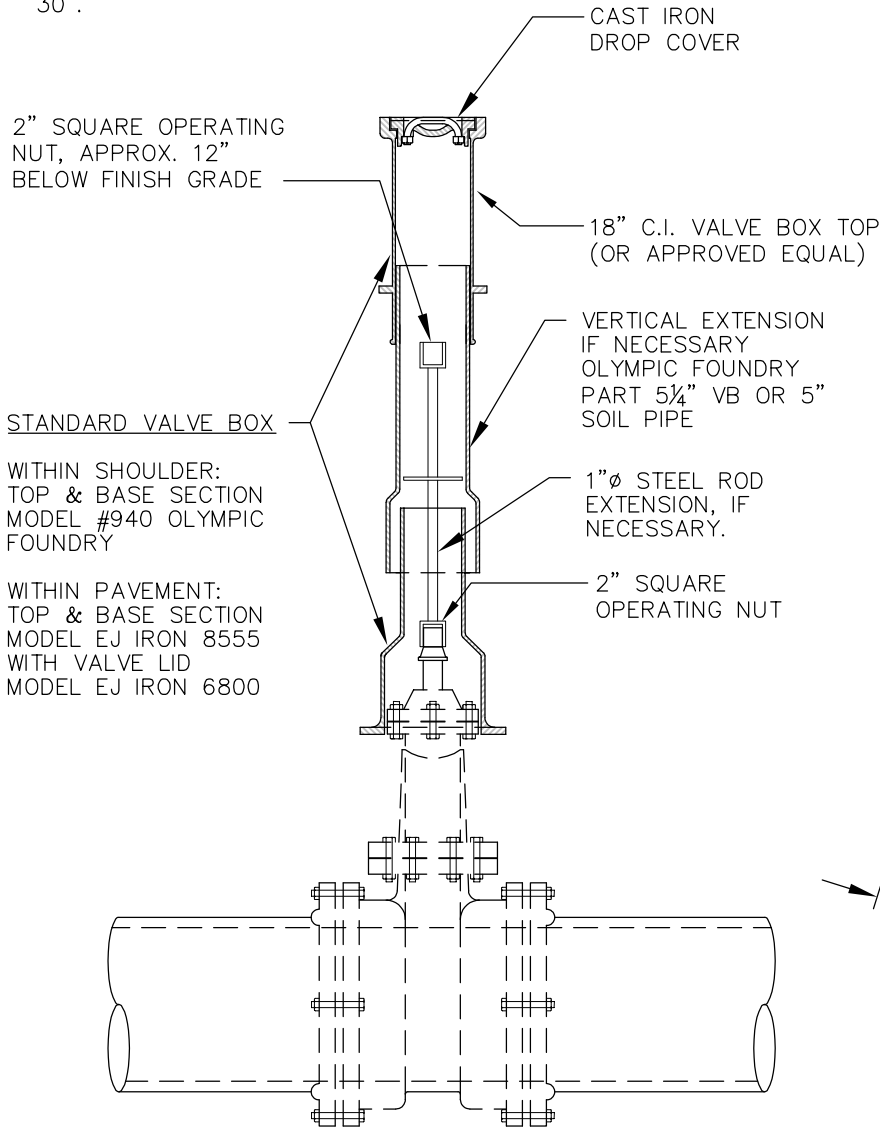
PLOTting DATE 03-06-19	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTting SCALE NTS	FILE NAME W-DTL-09		DATE APPROVED	

20

DWG. NO. W-09

NOTE:

VALVE EXTENSION SHALL BE INSTALLED WHEN DISTANCE BETWEEN FINISH GRADE AND TOP OF VALVE NUT EXCEEDS 30".



VALVE OPERATING NUT EXTENSION

LENGTH AS REQUIRED TO PUT OPERATING NUT, APPROXIMATELY 12" FROM SURFACE. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN THREE (3) FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG. ONLY ONE EXTENSION TO BE USED PER VALVE.

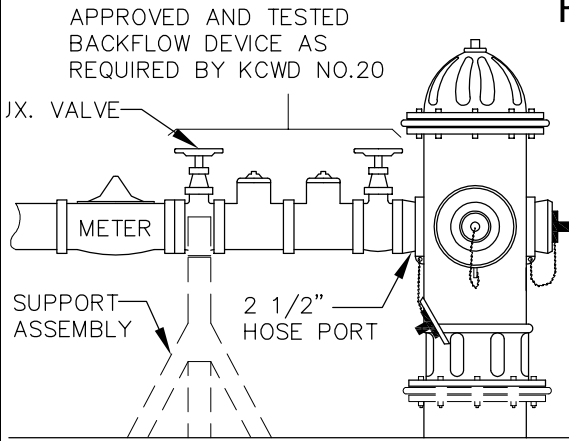
NOTE:

1. ALL EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH TWO COATS OF METAL PAINT.

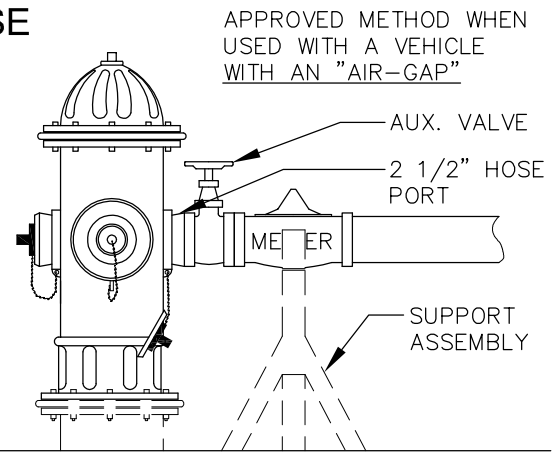
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USER: Peter Paulsen
PLOTING DATE: 2/3/2021 11:41 AM

STANDARD DETAIL VALVE BOX AND VALVE OPERATING EXTENSION					
PLOTTING DATE 4-16-21	DRAWN	CHECKED	APPROVED	DISTRICT	
PLOTTING SCALE NTS	FILE NAME W-DTL-10	DATE APPROVED		DWG. NO. W-10	

HYDRANT USE

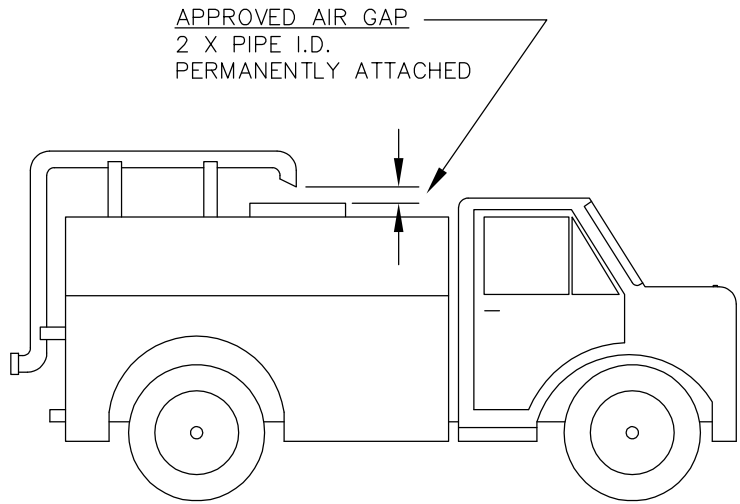


(A) OR (B)



HYDRANT USE PROCEDURES:

1. USER MUST HAVE A VALID "HYDRANT METER/WATER PURCHASE AGREEMENT" FROM KING COUNTY WATER DISTRICT NO. 20 IN THEIR POSSESSION.
2. NOTIFY THE DISTRICT SHOP AT (206) 243-3990, BEFORE CONNECTING TO HYDRANT.
3. THERE SHALL BE AN ACCEPTABLE WASHINGTON STATE APPROVED "BACKFLOW DEVICE" WHEN REQUIRED. THE BACKFLOW DEVICE MUST HAVE BEEN TESTED WITHIN THE PREVIOUS YEAR BY A CERTIFIED BACKFLOW TESTER. THE DISTRICT SHALL BE FURNISHED A COPY OF THE TESTING REPORT.
4. WITH AN APPROVED "AIR GAP", THERE SHALL BE AN AUXILIARY VALVE ATTACHED TO THE 2 1/2" HOSE PORT OF THE HYDRANT PROVIDED BY THE PERMIT HOLDER.
5. OPENING AND CLOSING OF HYDRANT VALVE SHALL BE WITH AN ACCEPTABLE HYDRANT WRENCH DESIGNED TO RECEIVE THE 5-SIDED NUT.
6. THE HYDRANT VALVE SHALL BE FULLY OPENED AND THE WATER USE CONTROLLED EXCLUSIVELY BY THE AUXILIARY VALVE.
7. THE AUXILIARY VALVE SHALL BE OPERATED IN SLOW MANNER TO PREVENT UNDUE EXCESSIVE PRESSURE ON THE WATER SYSTEM.
8. BACKFLOW DEVICE AND/OR METER ASSEMBLY SHALL BE PROPERLY SUPPORTED WITH SUPPORTS PROVIDED BY AGREEMENT HOLDER.
9. ANY VIOLATION OF ANY OF THE ABOVE SHALL CONSTITUTE TERMINATION OF WATER USE AGREEMENT AND USER TO BE SUBJECT TO A FINE AND/OR FORFEIT OF DEPOSIT.
10. IF UNABLE TO OPERATE OR CLOSE THE HYDRANT PROPERLY, CALL THE DISTRICT IMMEDIATELY FOR ASSISTANCE AT (206) 243-3990
11. WATER FROM HYDRANTS WITHIN THE DISTRICT CANNOT BE USED OUTSIDE THE DISTRICT BOUNDARIES. VIOLATIONS ARE SUBJECT TO LOSS OF WATER USE PERMITS AND MONETARY FINES.
12. THE UNDERSIGNED USER IS EXPERIENCED AND QUALIFIED TO PROPERLY OPERATE A FIRE HYDRANT.



SIGNED _____

DATE _____

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-11.dwg
 USER: Peter Paulsen
 PLOTTING DATE: 3/6/2019 10:31 AM

STANDARD DETAIL FIRE HYDRANT USE REQUIREMENTS

PLOTTING DATE 3-06-19	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-11	DATE APPROVED		



DWG. NO. W-11

METER BOX
 MID STATES HDPE PLASTIC
 MSBCF1324 - 12 WITH
 DUCTILE IRON READING LID.

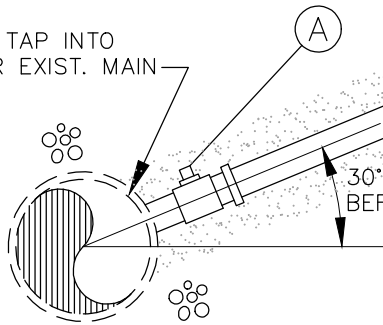
WATER METERS

SENSUS:
 IPERL (LF 1 IPERL 100CF SM 6 TRPL 2W)
 SR2 (LF 1 SR2 TRPL 100CF 20 BC LH)

BADGER: M55 1" METER, NSF61

BEDDING MATERIAL: SAND,
 6" MIN. AROUND SERVICE
 LINE AND CORPORATION
 STOP.

DIRECT TAP INTO
 NEW OR EXIST. MAIN



NOTE:

150' MAXIMUM FROM METER TO
 BUILDING UNLESS OTHERWISE
 DIRECTED BY DISTRICT.

30° TO 45° - PROVIDE 4" OF STRAIGHT COPPER
 BEFORE ANY DEFLECTIONS. SEE NOTE 2

- (A) CORPORATION STOP MUELLER H15008 OR FORD F1000
- (B) 1" COPPER TUBING ASTM B88 TYPE K
- (C) LOCK WING ANGLE METER VALVE MUELLER H14258 OR FORD KV 43-332WQ AND KV 43-444WQ
- (D) WATER METER MEASURING IN CCF SUPPLIED BY DEVELOPER
- (E) COUPLING AS REQUIRED
- (F) SENSUS MXU (M520M-F1-TC-X-E-MI 1P PIT W-ID/LD)

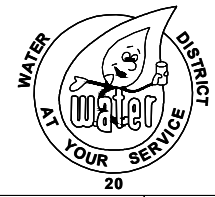
NOTES:

1. BACKFILL SHALL BE FIRMLY COMPACTED UNDER CORPORATION STOP AND COPPER TUBING IN THE WATERMAIN TRENCH AREA.
2. USE A PIPE BENDER OR FORD BENDS.
3. ALL SERVICES REQUIRE BACKFLOW PREVENTION WITHIN 3' OF METER.

FILE NAME: L:\CAD\DETAILS\Districts\WD_20\Std_Details\W-DTL-12.dwg
 PLOTTING DATE: 5/15/2023 11:23 AM
 USER: Peter Poulsen

STANDARD DETAIL 1" WATER SERVICE

PLOTING DATE 5-15-23	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTING SCALE NTS	FILE NAME W-DTL-12	DATE APPROVED		



DWG. NO. W-12

WATER METER (CCF)
 SUPPLIED BY DEVELOPER
 SENSUS:
 1½" LF 1.5 OMR2 MNCS 13L 100CF AMR
 2" LF 1.5 OMR2 MNCS 17L 100CF AMR

BADGER:
 1½" M120 1½" NSF61 METER
 2" M120 1½" NSF61 METER

METER BOX
 1½" - 2" MID STATES HDPE PLASTIC
 MSBCF1730- 12 (OR
 APPROVED EQUAL)
 WITH DUCTILE IRON
 READING LID.

14 GAUGE LOCATING
 WIRE

STRAIGHT BRASS COUPLING,
 MIPx PJ

METER SETTER
 1½" - FORD VH76-12B-11-66
 2" - FORD VH87-12B-11-77
 OR
 1½" - MUELLER H1423-2-01x12"
 2" - MUELLER H1423-2-01x12"

ANGLE
 VALVE

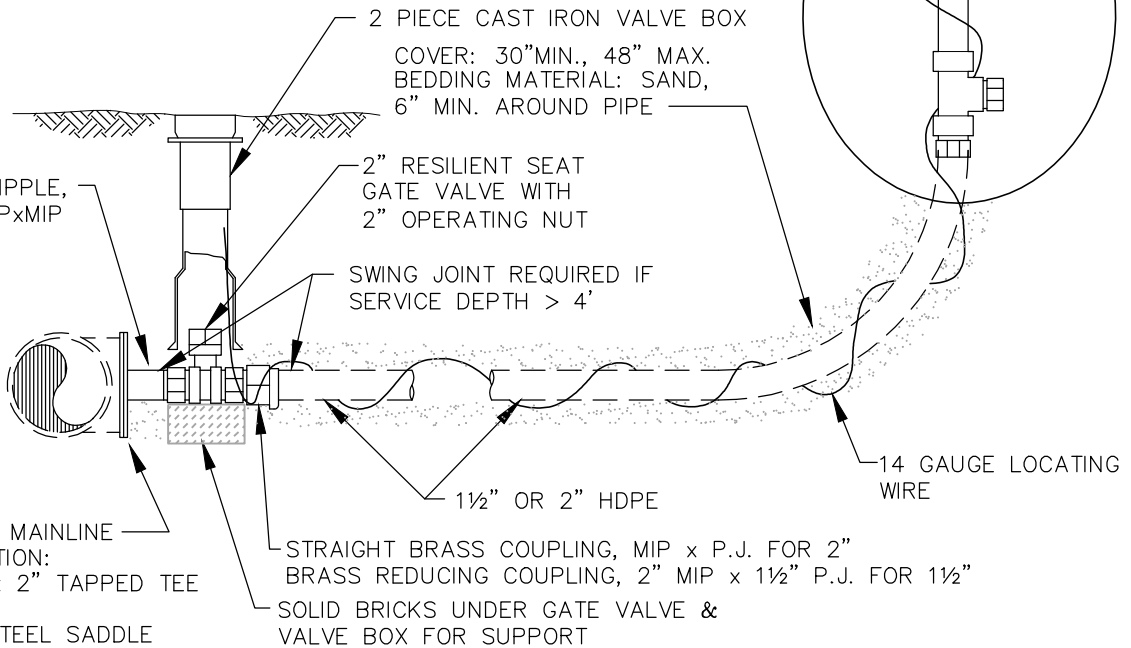
ANGLE
 VALVE

9" - 12"

PLUG, MIP

PLUG, MIP

SEE DETAIL



2" BRASS NIPPLE,
 6" LONG, MIPxMIP

2 PIECE CAST IRON VALVE BOX
 COVER: 30" MIN., 48" MAX.
 BEDDING MATERIAL: SAND,
 6" MIN. AROUND PIPE

2" RESILIENT SEAT
 GATE VALVE WITH
 2" OPERATING NUT

SWING JOINT REQUIRED IF
 SERVICE DEPTH > 4'

1½" OR 2" HDPE

14 GAUGE LOCATING
 WIRE

CONNECTION TO MAINLINE
 NEW CONSTRUCTION:
 MAINLINE SIZE x 2" TAPPED TEE
 EXISTING MAIN:
 2" STAINLESS STEEL SADDLE

STRAIGHT BRASS COUPLING, MIP x P.J. FOR 2"
 BRASS REDUCING COUPLING, 2" MIP x 1½" P.J. FOR 1½"
 SOLID BRICKS UNDER GATE VALVE &
 VALVE BOX FOR SUPPORT

NOTE: ALL SERVICES REQUIRE BACKFLOW PREVENTION WITHIN 3' OF METER.

FILE NAME: L:\CAD\DETAILS\Districts\WD_20\Std Details\W-DTL-13.dwg
 USER: Peter Paulsen

PLOTTING DATE: 5/15/2023 11:25 AM



An Engineering Services Company
 11255 Kirkland Way, Suite 300
 Kirkland, WA 98033
 p. 425.827.2014 | f. 425.827.5043

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STANDARD DETAIL 1-1/2" AND 2" WATER SERVICE

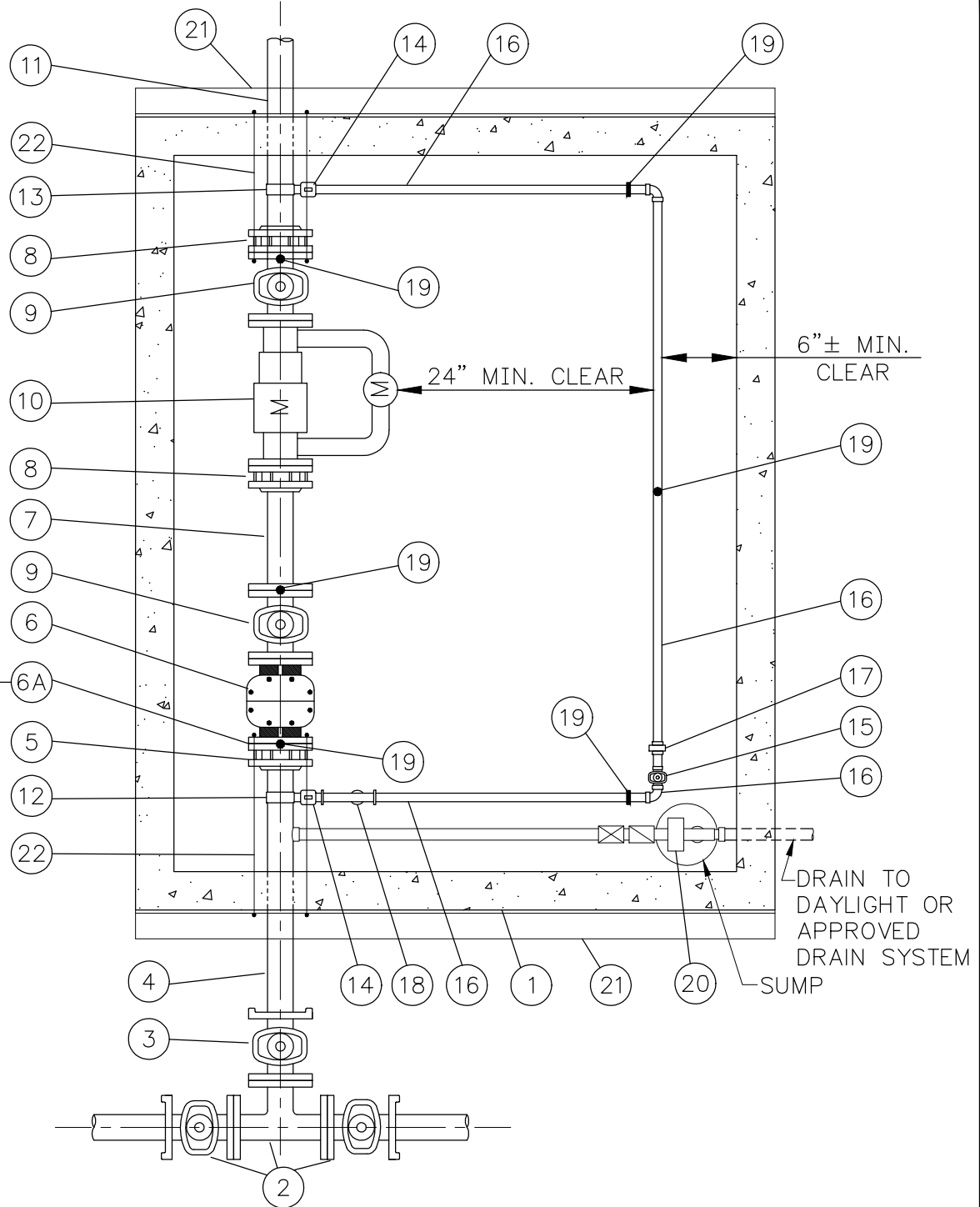
PLOTTING DATE 5-15-23	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-13	DATE APPROVED		



DWG. NO. W-13

FILE NAME: L:\CAD\DETAILS\Districts\WD_20\Std_Details\W-DTL-14&15.dwg
 USER: Peter Paulsen
 PLOTTING DATE: 1/25/2023 2:53 PM

3" SERVICE ONLY



NOTES:

1. THE KNOCKOUTS IN THE VAULT SHALL BE FULL WIDTH. KNOCKOUT 2' ABOVE THE VAULT FLOOR TO ALLOW ACCEPTABLE INSTALLATION OF THE PIPE.
2. FINAL VAULT TOP AND COVER SHALL BE SUBMITTED TO THE DISTRICT FOR APPROVAL ON A CASE BY CASE BASIS.
3. INSTALL LINK-SEAL WHERE PIPE TRANSITIONS THROUGH VAULTS.
4. ALL SERVICES REQUIRE BACKFLOW PREVENTION - REFER TO STD. DWG. NO. 16 FOR A DOUBLE CHECK VALVE ASSEMBLY.

SHEET 1 OF 2

STANDARD DETAIL					
3", 4" AND 6" WATER SERVICE					
PLOTTING DATE 4-16-21	DRAWN LC	CHECKED PP	APPROVED	DISTRICT	
PLOTTING SCALE NTS	FILE NAME W-DTL-14&15		DATE APPROVED		

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-14&15.dwg
USER: Peter Paulsen
PLOT DATE: 4/16/2021 2:06 PM

MATERIAL LIST		SERVICE SIZE		
		3"	4"	6"
1	UTILITY VAULT TOP SECTION * COVER	676LA 676TL 4242C 44-332P	676LA 676TL 4242C 44-332P	687LA 687TL 4242C 44-332P
2	MAINLINE TEE, FLxFL 2-MAINLINE GATE VALVES, FLxMJ	SIZE BASED ON MAINLINE DIAMETER		
3	GATE VALVE, FLxMJ	4"	4"	6"
4	D.I. PIPE, LENGTH AS REQUIRED	4"	4"	6"
5	UNI-FLANGE ADAPTER	400 C4	400 C4	400 C6
6	'Y' STRAINER, FLxFL	3"	4"	6"
6A	4"x3" REDUCER, FLxFL	INSTALL UPSTREAM OF STRAINER ON 3" SERVICE ONLY		
7	SPOOL FLxPE, CL. 53 D.I.	L=12"	L=12"	L=15"
8	UNI-FLANGE ADAPTER	400 C3	400 C4	400 C6
9	GATE VALVE, FLxFL	3"	4"	6"
10	SENSUS IPERL METER AND MXU ASSEMBLY, FLxFL	3"x5/8"	4"x1"	6"x1 1/2"
11	D.I. PIPE TO WATER USER, LENGTH AS REQUIRED	3"	4"	6"
12	ROMAC DOUBLE STRAP SADDLE	4"x1"	4"x1"	6"x1"
13	ROMAC DOUBLE STRAP SADDLE	3"x1"	4"x1"	6"x1"
14	CORP STOP FORD FB1700	1"	1"	1"
15	BRASS LOCKING GATE VALVE	1"	1"	1"
16	BRASS PIPE AND FITTINGS AS REQUIRED	1"	1"	1"
17	BRASS UNION	1"	1"	1"
18	STRAINER	1"	1"	1"
19	STANDON PIPE SUPPORT	UNDER #6 STRAINER, #9 GATE VALVES AND #16 BYPASS PIPE		
20	SLOPE DRAIN TO DAYLIGHT WHERE APPLICABLE. INSTALL GCS AUTOMATIC SUMP DRAIN EJECTOR ASSY. MODEL #996633-51-2 IN LIEU OF GRAVITY DRAIN IF VAULT DOESN'T DRAIN.	1 1/4"	1 1/4"	1 1/4"
21	3"x3"x3/8" GALV. ANGLE IRON - 4 REQUIRED, 2 EACH END	L=6'-3"	L=6'-3"	L=6'-8"
22	5/8" DIAM. GALV OR STAINLESS STEEL BOLT FROM FLANGE THROUGH WALL TO ANGLE, LENGTH AS REQUIRED	5/8" ø 2 REQ' EACH END	5/8" ø 4 REQ' EACH END	5/8" ø 4 REQ' EACH END

* NOTE: FINAL VAULT AND COVER SHALL BE SUBMITTED TO THE DISTRICT FOR FINAL APPROVAL BASED ON A CASE BY CASE BASIS.
PROVIDE GALVANIZED STEEL OR ALUMINUM LADDER W/ 'LADDER UP" EXTENSION.
LADDER TO BE ATTACHED TO SIDE OF HATCH AND VAULT FLOOR.


SHEET 2 OF 2



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STANDARD DETAIL
3", 4" AND 6" WATER SERVICE

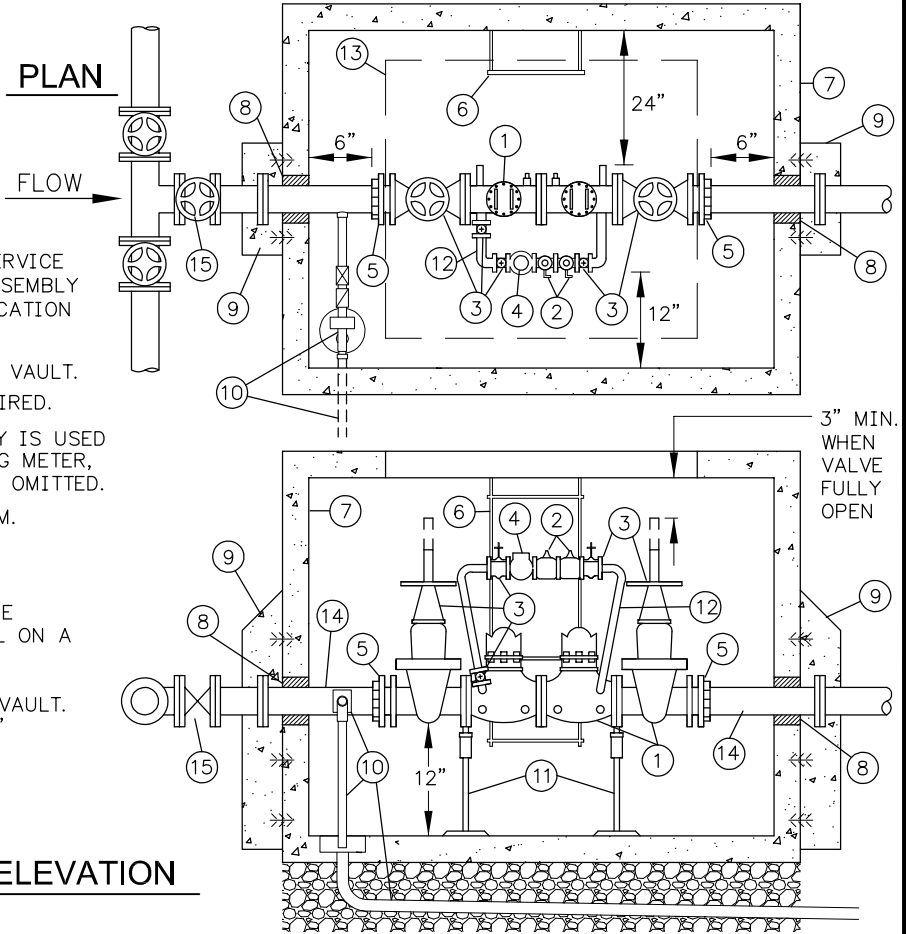
PLOTTING DATE 4-16-21	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-14&15	DATE APPROVED		



DWG. NO. W-15

NOTES:

1. DISTRICT WILL DETERMINE IF REDUCED PRESSURE PRINCIPAL DEVICE IS REQUIRED.
2. ASSEMBLY TO BE MAINTAINED BY PROPERTY OWNER/CUSTOMER & ANNUAL CERTIFICATION REQUIRED.
3. FIRELINE SHALL NOT BE PUT INTO SERVICE UNTIL THE BACKFLOW PREVENTION ASSEMBLY IS APPROVED BY DISTRICT. CERTIFICATION FOLLOWING INSTALLATION REQUIRED.
4. VALVE ASSEMBLY TO BE CENTERED IN VAULT.
5. TEE & 2 MAINLINE VALVES ARE REQUIRED.
6. WHEN DOUBLE CHECK VALVE ASSEMBLY IS USED IN SAME LINE W/ DOMESTIC BUILDING METER, METERED DETECTOR BYPASS SHALL BE OMITTED.
7. ALL CLEARANCES SHOWN ARE MINIMUM.
8. VAULTS SHALL NOT BE INSTALLED IN AREAS W/ VEHICULAR TRAFFIC.
9. VAULT SIZE AND LID OPTIONS SHALL BE SUBMITTED TO DISTRICT FOR APPROVAL ON A CASE BY CASE BASIS.
10. 4" MINIMUM SIZE PIPE FROM MAIN TO VAULT. FOR 3" DDCV ASSEMBLY INSTALL 4"x3" REDUCER IN VAULT.
11. VAULT SHALL DRAIN TO DAYLIGHT OR APPROVED DRAIN SYSTEM.



ELEVATION

- ① STATE APPROVED DOUBLE CHECK DETECTOR ASSEMBLY, COMPLETE W/ (2) RESILIENT SEATED O.S.&Y. VALVES & (4) RESILIENT SEATED TEST COCKS, & BRASS OR COPPER DETECTOR BY-PASS.
- ② STATE APPROVED 3/4" DOUBLE CHECK VALVE ASSEMBLY, COMPLETE W/ (2) RESILIENT SEATED BALL VALVES & (4) RESILIENT SEATED TEST COCKS.
- ③ EACH VALVE SHALL BE MARKED W/ MODEL NUMBER W/ DESIGNATION OF RESILIENT SEAT: SUCH AS "RS" OR "R", WHICH MUST BE CAST, MOLDED, OR AFFIXED ONTO THE BODY OR BONNET OF THE VALVE. ALL FERROUS BODIED VALVES SHALL BE COATED W/ A MIN. OF 4MLS. OF EPOXY OR EQUIVALENT POLYMERIZED COATING.
- ④ 3/4" SENSUS IPERL METER (CUBIC FEET READING) AND MXU
- ⑤ UNI-FLANGE W/ SETSCREWS.
- ⑥ GALVANIZED STEEL OR ALUMINUM LADDER W/ 'LADDER UP" EXTENSION. LADDER TO BE ATTACHED TO SIDE OF HATCH AND VAULT FLOOR.
- ⑦ CONCRETE VAULT W/ A MIN. OF 2, 3'x3' ALUM. DIAMOND PLATE DOORS RATED FOR H2O LOADING, MARKED "WATER". DOORS SHALL BE LW HATCH OR EQUAL W/ SPRING LIFT & RECESSED PADLOCK HASP. PAINTED ALUM. SIGN TO BE MOUNTED ON UNDERSIDE OF HATCH "CONFINED SPACE. ENTRY BY PERMIT ONLY". VAULT SHALL BE EQUAL TO UTILITY VAULT CO. MODEL LISTED IN TABLE BELOW.
- ⑧ LINK SEALS
- ⑨ RESTRAIN INLET/OUTLET PIPE FLANGE WITH CAST-IN ANCHOR BLOCKS WITH REBAR EMBEDDED IN VAULT WALL.
- ⑩ SLOPE DRAIN TO DAYLIGHT WHERE APPLICABLE. INSTALL GCS AUTOMATIC SUMP DRAIN EJECTOR ASSY. MODEL #996633-51-2 IN LIEU OF GRAVITY DRAIN IF VAULT DOESN'T DRAIN.
- ⑪ TWO ADJUSTABLE PIPE STANCHIONS.
- ⑫ ALL PLUMBING FOR BY-PASS TO BE COPPER & BRASS.
- ⑬ ACCESS TO BE CENTERED OVER METER.
- ⑭ CL. 52 D.I., M.J. W/ RETAINER GLANDS.
- ⑮ TEE & THREE VALVES SHALL BE INSTALLED AT MAIN. SIZE TO FIT.

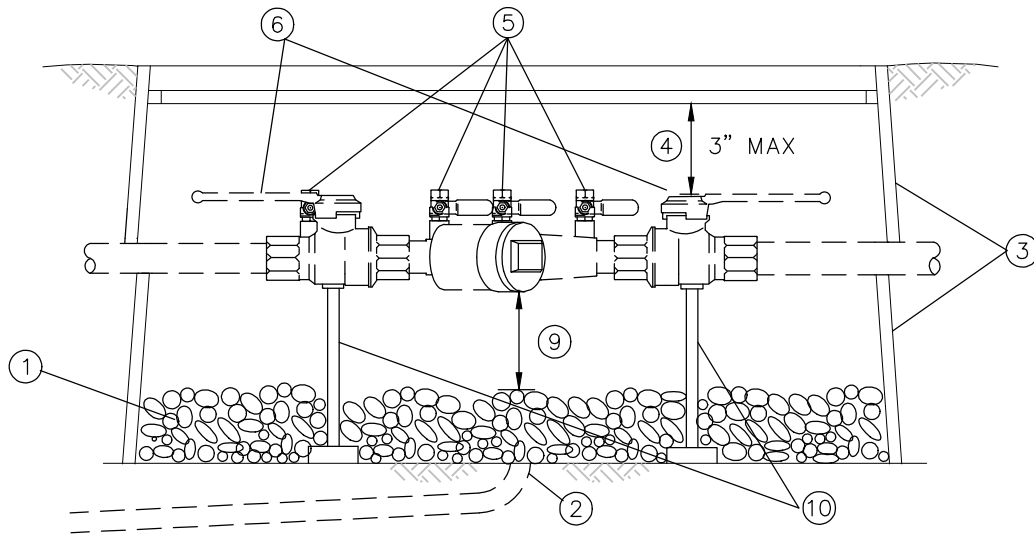
SIZE	UTIL. VAULT CO. MODEL	UTIL. VAULT CO. COVER
3"	675-WA	675-TL2-332P
4"	675-WA	675-TL2-332P
6"	675-WA	675-TL2-332P
8"	687-LA	687-TL2-332
10"	5106-LA	5106-TL3-332

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-16.dwg
USER: Peter Poulsen
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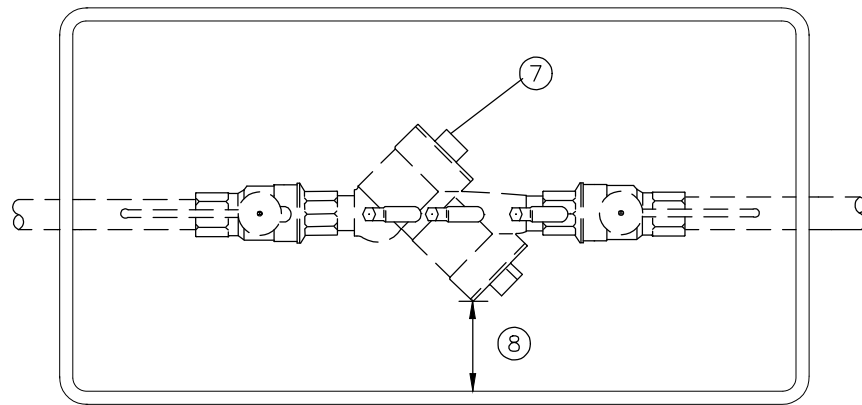
STANDARD DETAIL
3" OR LARGER DOUBLE
DETECTOR CHECK ASSEMBLY

PLOTTING DATE 4-16-21	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-16	DATE APPROVED		DWG. NO. W-16

FILE NAME: L:\CAD\DETAILS\Districts\WD_20\Std_Details\W-DTL-17.dwg
 USER: Michael Maranan
 PLOTTING DATE: 1/25/2023 2:55 PM



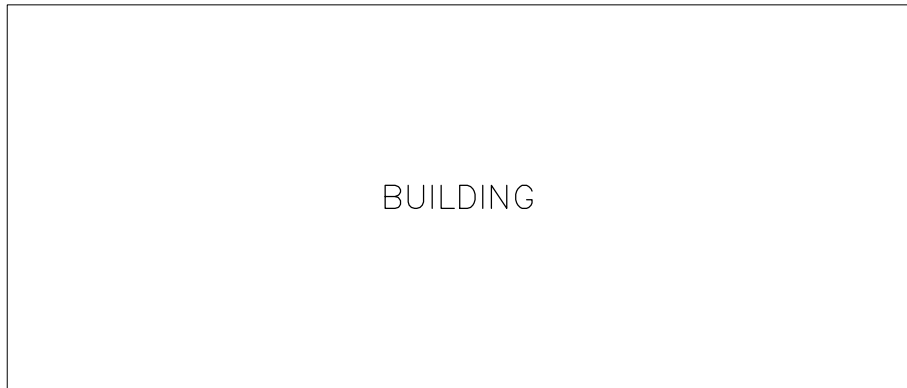
SECTION



PLAN

- ⊛ MUST BE INSTALLED WITHIN 3' DOWNSTREAM OF A WATER METER FOR A STANDARD WATER SERVICE.
- ⊛ INSTALL ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
- ① 1" ROUND WASHED GRAVEL BY 6" DEEP ON BOTTOM OF BOX OR
- ② DRAIN TO DAY LIGHT
- ③ ENCLOSE 1" & SMALLER D.C.V.A. IN MID STATES 1324-18 BOX. FOR 1½" AND 2" USE MID STATES 1730-18 BOX. MUST HAVE REMOVABLE COVER.
- ④ MAXIMUM OF 3" DISTANCE BETWEEN UNDERSIDE OF LID AND HIGHEST POINT OF DEVICE.
- ⑤ MUST INCLUDE (4) RESILIENT SEATED TESTCOCKS WITH PLUGS VALVES.
- ⑥ THE D.C.V.A. MUST INCLUDE (2) RESILIENT SEATED SHUT-OFF VALVES.
- ⑦ Y-PATTERN D.C.V.A. SHOULD BE INSTALLED ON SIDE.
- ⑧ WHEN TESTCOCKS ARE FACING SIDEWAYS THERE MUST BE A 6" MIN. CLEARANCE BETWEEN THEM AND SIDE OF BOX.
- ⑨ MIN. OF 12" BETWEEN LOWEST POINT OF DEVICE AND DRAIN ROCK.
- ⑩ PROVIDE SUPPORT FOR 2" DEVICES.
- ⑪ FOR FIRE SPRINKLER SYSTEMS LARGER THAN 2", SEE DETAIL SHEET NO. 16 .
- ⊛ OWNER MUST TEST AND CERTIFY PRIOR TO USE.
- ⊛ ASSEMBLY TO BE MAINTAINED BY OWNER AND ANNUAL CERTIFICATION REQUIRED.

STANDARD DETAIL				
2" OR SMALLER DOUBLE				
CHECK VALVE ASSEMBLY				
PLOTTING DATE	DRAWN	CHECKED	APPROVED	DISTRICT
3-7-23				
PLOTTING SCALE	FILE NAME		DATE APPROVED	
NTS	W-DTL-17			



DOMESTIC SERVICE LINE.
INSTALLATION AND MATERIAL
BY OWNER

FIRE SPRINKLER /
IRRIGATION BRANCH
INSTALLATION PER UPC

UNIFORM PLUMBING
CODE (UPC)

PREMISE ISOLATION

DOMESTIC BUILDING METER

R/W

STANDARD 1", 1½" OR
2" WATER SERVICE

APPROVED DOUBLE CHECK VALVE ASSEMBLY
FOR FIRE SPRINKLER/IRRIGATION SYSTEM.
COMBINATION SYSTEM ONLY APPROVED FOR
RESIDENTIAL APPLICATIONS. SEE DETAIL
SHEET NO. 17

DCVA TO BE LOCATED
WITHIN 3' OF METER

FOR CONNECTION
SEE STD. WATER SERVICE DETAILS

NOTE:
ASSEMBLY TO BE MAINTAINED BY
OWNER AND ANNUAL CERTIFICATION
REQUIRED.

FILE NAME: L:\CAD\DETAILS\Districts\WD_20\Std_Details\W-DTL-18.dwg

USER: Michael Maronon

PLOTTING DATE: 3/7/2023 1:56 PM

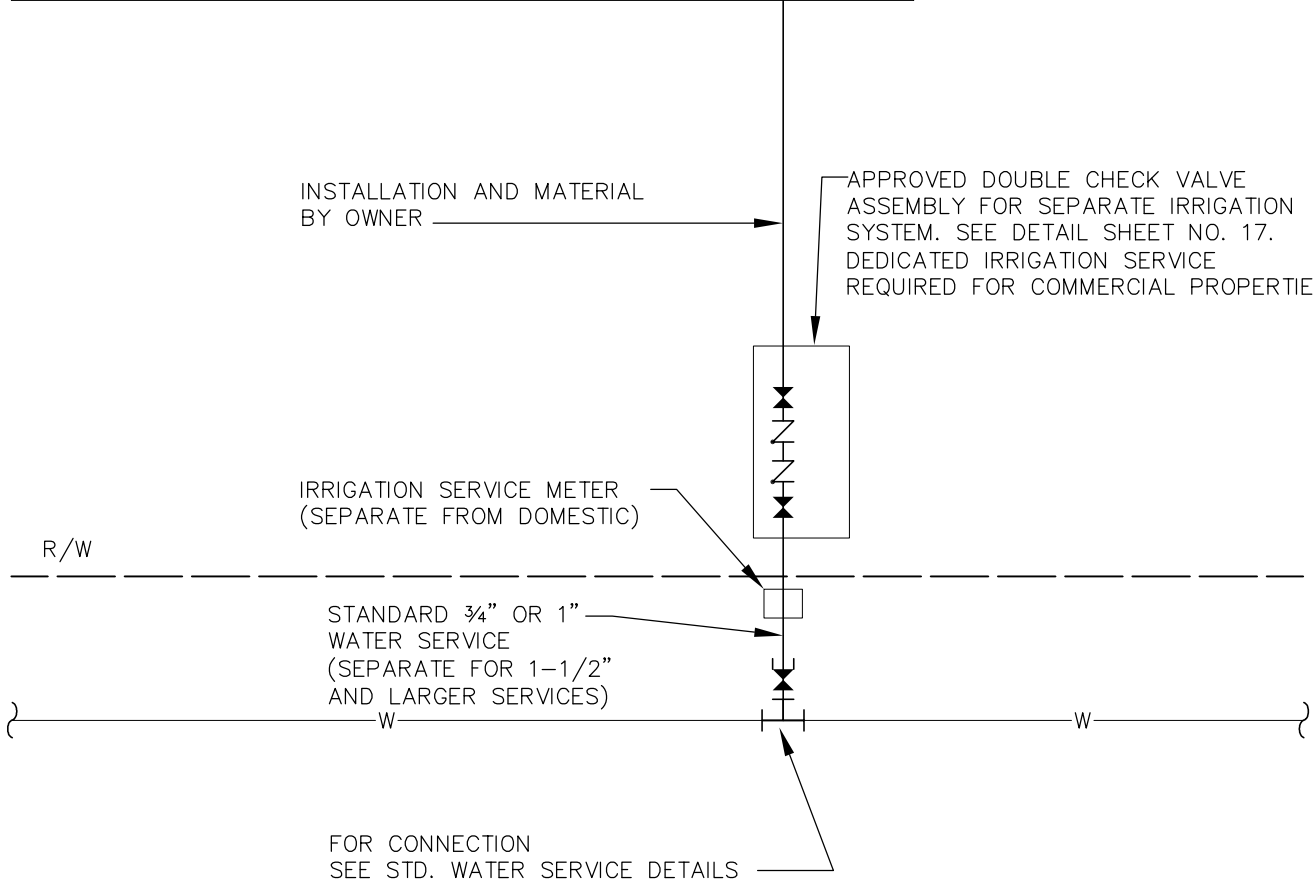
STANDARD DETAIL 2" AND SMALLER COMBINED DOMESTIC AND FIRE SPRINKLER / IRRIGATION DOUBLE CHECK VALVE ASSEMBLY

PLOTTING DATE 3-7-23	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-18		DATE APPROVED	



DWG. NO. W-18

PRIVATE IRRIGATION SYSTEM



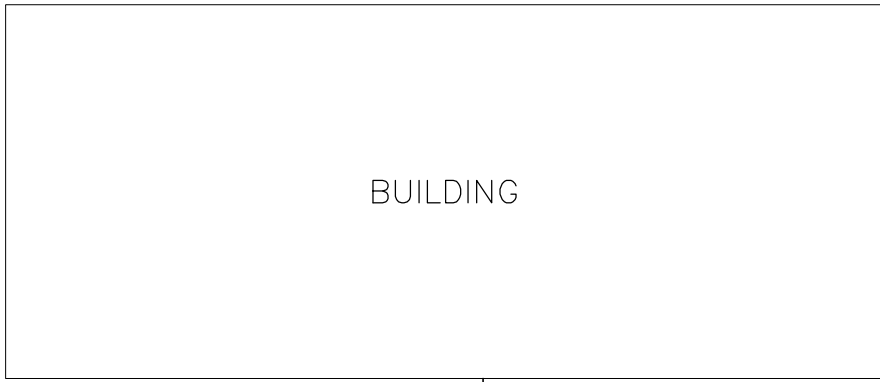
NOTE:
 ASSEMBLY TO BE MAINTAINED BY
 OWNER AND ANNUAL CERTIFICATION
 REQUIRED.

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-19.dwg
 USER: Peter Poulsen

PLOTTING DATE: 4/16/2021 11:27 PM

STANDARD DETAIL					
1" OR SMALLER OUTSIDE INSTALLED IRRIGATION SYSTEM SEPARATE FROM THE DOMESTIC SYSTEM					
PLOTTING DATE	DRAWN	CHECKED	APPROVED	DISTRICT	
3-06-19	LC	PP			
PLOTTING SCALE	FILE NAME			DATE APPROVED	
NTS	W-DTL-19				

DWG. NO. W-19



INSTALLATION AND MATERIAL
BY OWNER

3" OR LARGER FIRE SPRINKLER SYSTEM
SEPARATE FROM DOMESTIC SERVICE

4" x 3" REDUCER REQUIRED
FOR 3" FIRE SPRINKLER

R/W

APPROVED 3" AND LARGER DOUBLE
CHECK VALVE ASSEMBLY WITH
DETECTOR FOR SEPARATE FIRE
SPRINKLER SYSTEM. SEE DETAIL
SHEET NO. 16. INSTALLATION IN
VAULT OR INSIDE BUILDING. BYPASS
SHALL BE IPEARL AND MXU 3/4"
SENSUS METER (CF READING)

4" OR LARGER, DUCTILE IRON,
CLASS 52, MEETING THE
REQUIREMENTS OF AWWA C151.



SEE BELOW *

NOTE:
ASSEMBLY TO BE MAINTAINED BY
OWNER AND ANNUAL CERTIFICATION
REQUIRED.

***FOR NEW CONSTRUCTION**
INSTALL MAIN SIZED x 4" OR LARGER TEE, FLxFL, 2 MAINLINE VALVES, FLxMJ, AND
4" OR LARGER GATE VALVE, FLxMJ

***FOR CUT IN TEE**
INSTALL MAIN SIZED x 4" OR LARGER TEE, FLxFL, 2 MAINLINE VALVES, FLxMJ,
4" OR LARGER GATE VALVE, FLxMJ AND TWO (2) MAIN SIZE SLEEVES, MJ, AND NIPPLES.

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-20.dwg

USER: Peter Paulsen

PLOTTING DATE: 4/16/2021 1:35 PM

STANDARD DETAIL 3" OR LARGER COMMERCIAL FIRE SPRINKLER DOUBLE CHECK VALVE ASSEMBLY WITH DETECTOR

PLOTTING DATE 3-06-19	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-20		DATE APPROVED	



DWG. NO. W-20