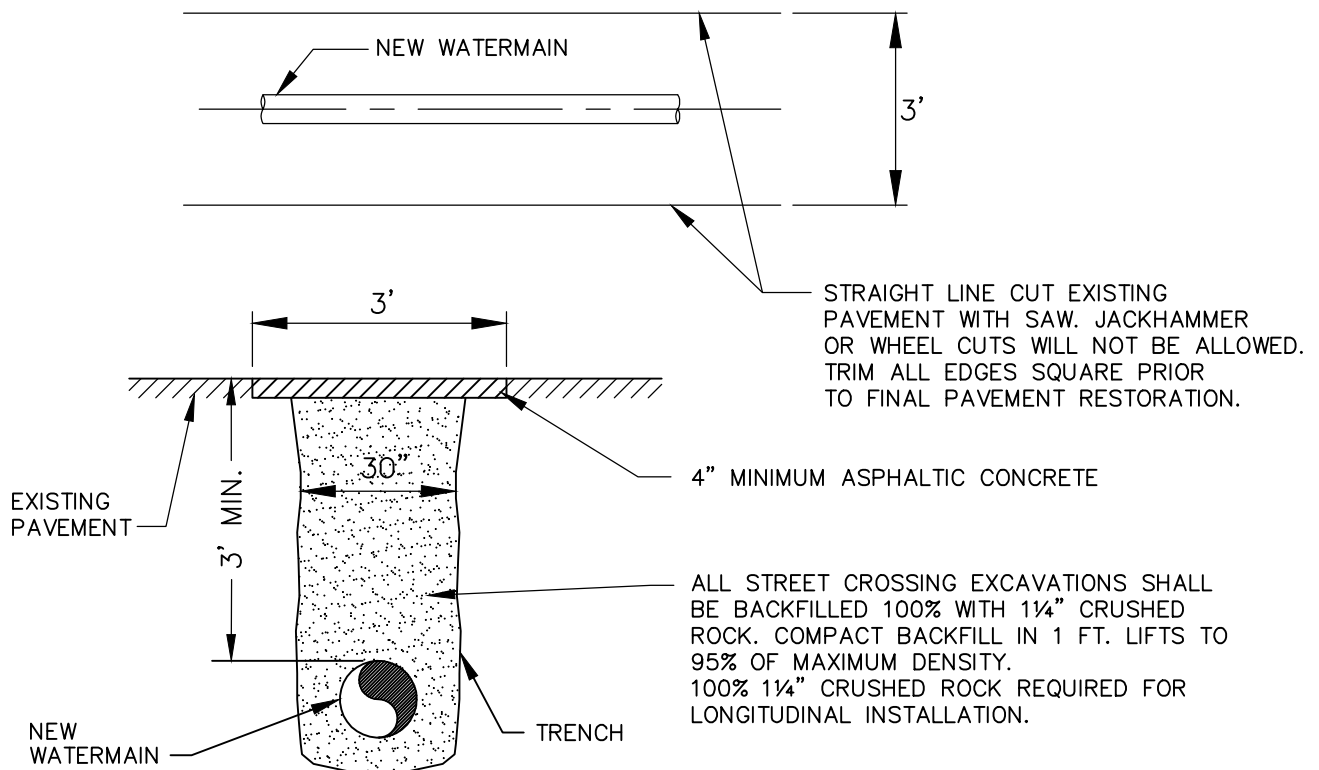
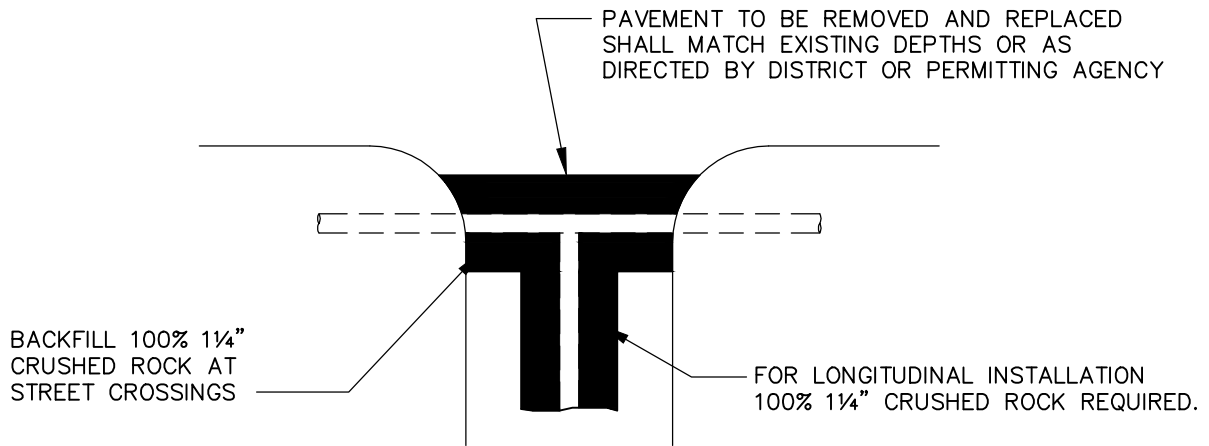


**NOTES:**

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



**SECTION**

**PAVEMENT RESTORATION**

**SHEET 1 OF 2**

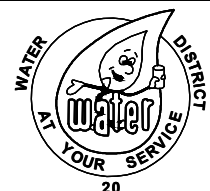


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**STANDARD DETAIL  
RESTORATION**

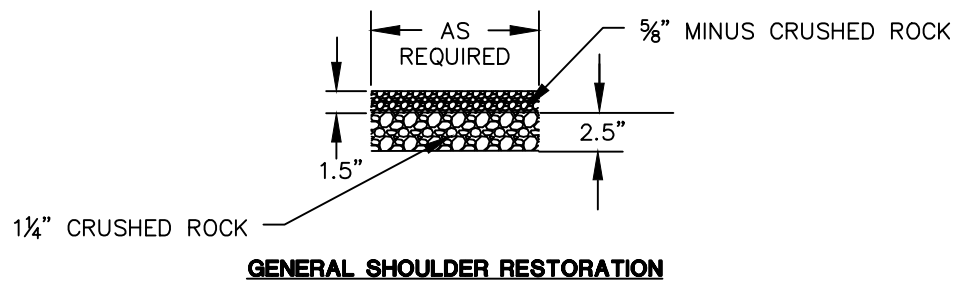
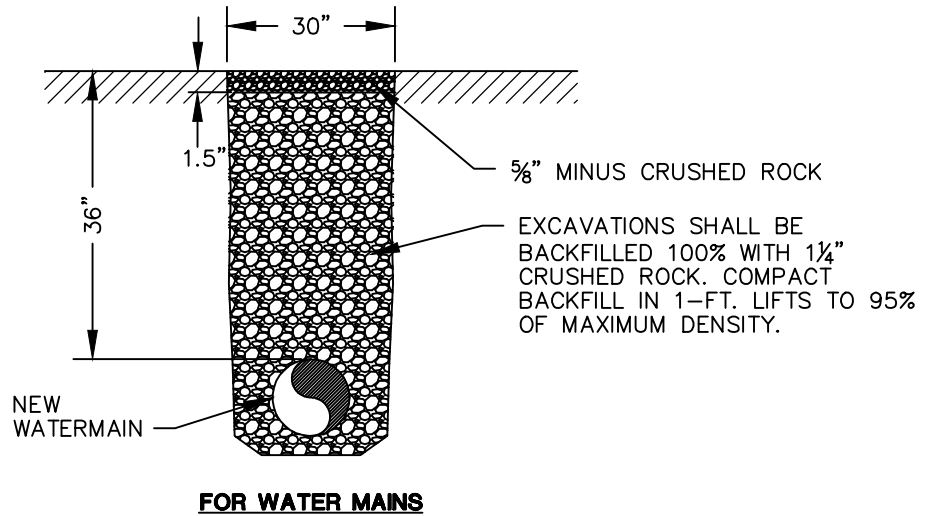
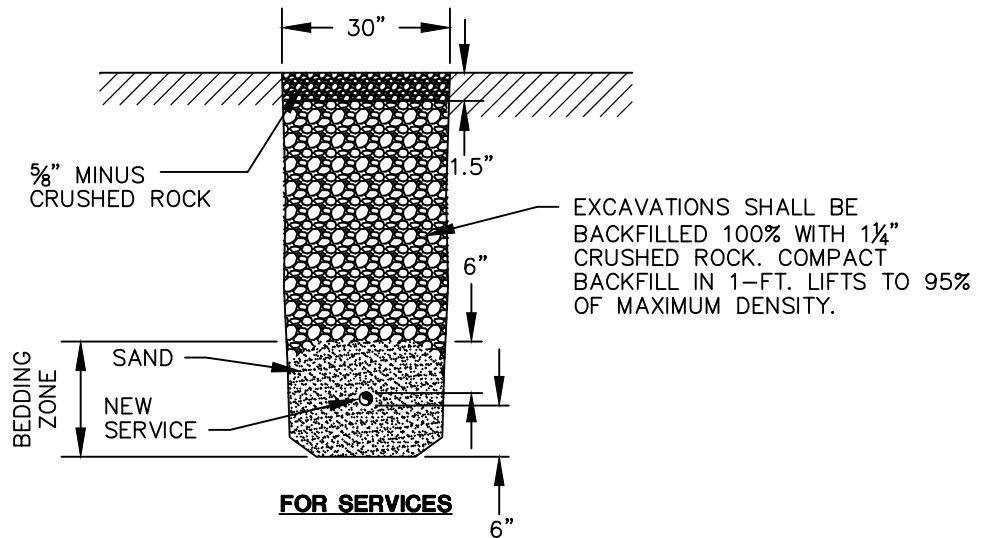
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PLOTTING SCALE NTS	FILE NAME W-DTL-01	DATE APPROVED		



DWG. NO. W-01

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USER: Aaron Jackson

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 PLOTTING DATE: 12/27/2021 11:57 AM USER: Aaron Jackson



## GRAVEL SHOULDER RESTORATION

SHEET 2 OF 2



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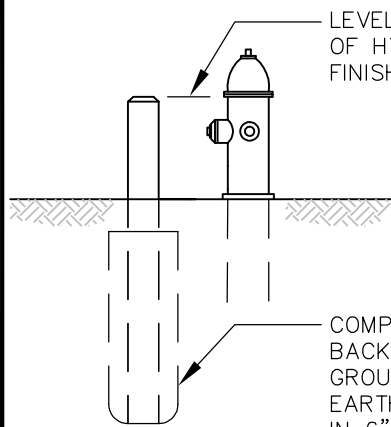
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PLOTTING SCALE NTS	FILE NAME W-DTL-01	DATE APPROVED		



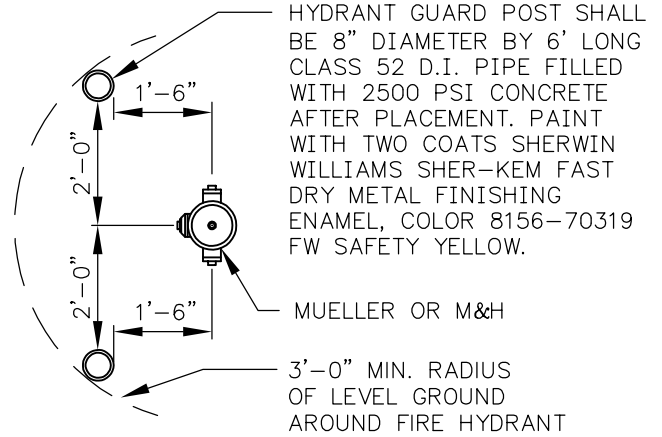
DWG. NO. W-01(2)





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.



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

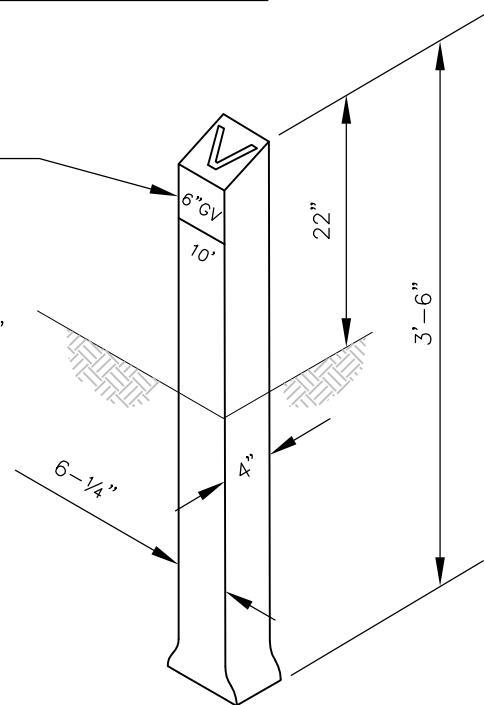
3'-0" MIN. RADIUS  
OF LEVEL GROUND  
AROUND FIRE HYDRANT

## ELEVATION

## 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
PLOTTING SCALE NTS	FILE NAME W-DTL-03	DATE APPROVED		



DWG. NO.

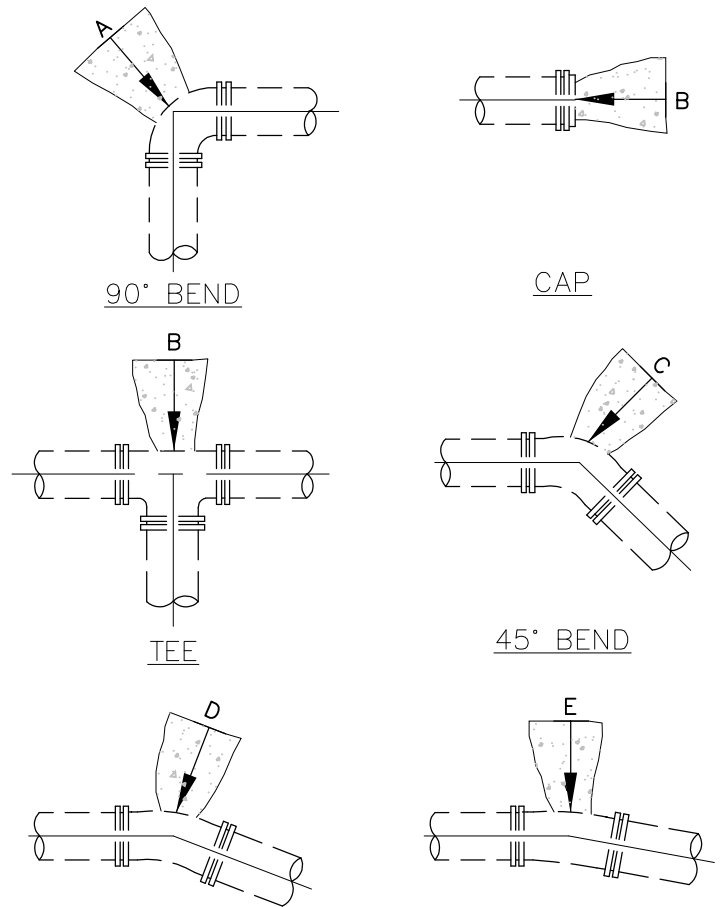
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USER: Peter Paulsen

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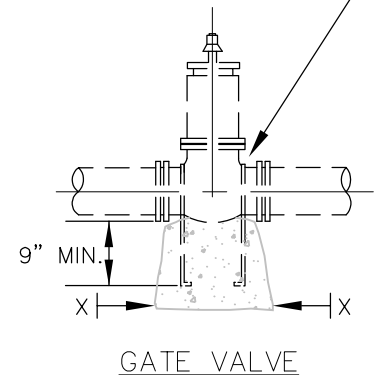
THRUST BLOCK - TABLE						
MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL SQUARE FEET						
PIPE SIZE	A	B	C	D	E	X (100 PSI)
4"	3	2	2	2	2	NONE
6"	4	4	2	2	2	NONE
8"	7	6	4	2	2	4
10"	11	10	6	3	2	6
12"	16	14	9	5	3	9
14"	22	19	12	6	3	12
16"	29	25	16	8	4	16
18"	36	31	20	10	5	20
20"	45	39	24	13	6	24
22"	54	47	29	15	8	29
24"	64	56	35	18	9	35



#### 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 - ½" DIA. RODS FOR 10" SIZE & SMALLER  
2 - 1" DIA. RODS LARGER THAN 10" SIZE



#### NOTES:

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



## 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

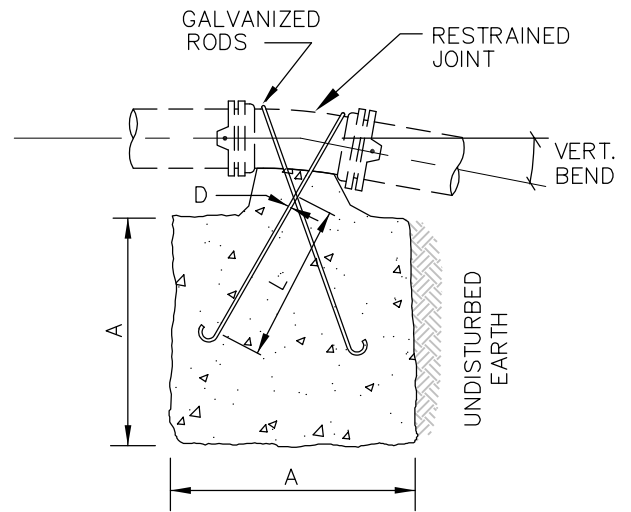
USER: Peter Paulsen

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

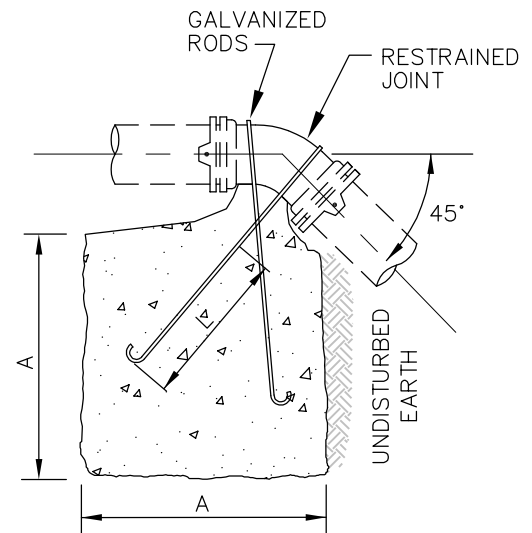
VERTICAL BLOCKING FOR 11 1/4°-22 1/2°-30° BENDS					
PIPE SIZE	V B	CU FT	A	D	L
4"	11 1/4°	8	2.0'	3/4"	1.5'
	22 1/2°	11	2.2'		2.0'
	30°	17	2.6'		
6"	11 1/4°	11	2.2'	3/4"	2.0'
	22 1/2°	25	2.9'		
	30°	41	3.5'		
8"	11 1/4°	16	2.5'	3/4"	2.0'
	22 1/2°	47	3.6'		
	30°	70	4.1'	3/4"	2.5'
12"	11 1/4°	32	3.2'	3/4"	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					
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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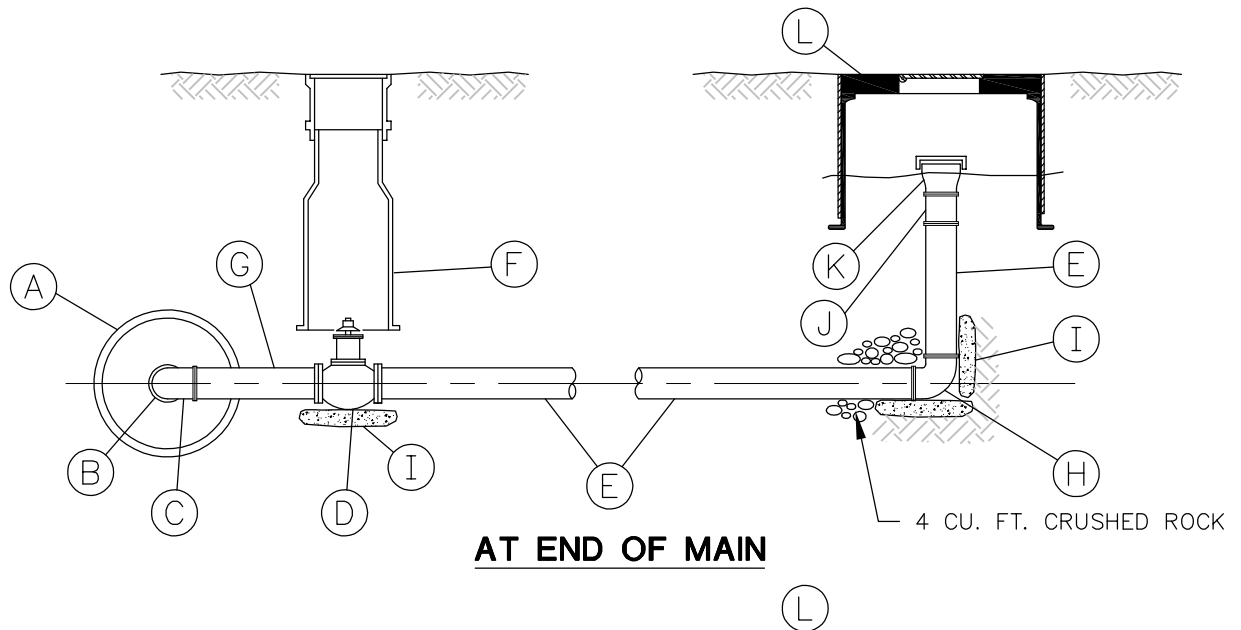
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PLOTTING SCALE NTS	FILE NAME W-DTL-05	DATE APPROVED		



DWG. NO. W-05

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 USER: Peter Paulsen  
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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

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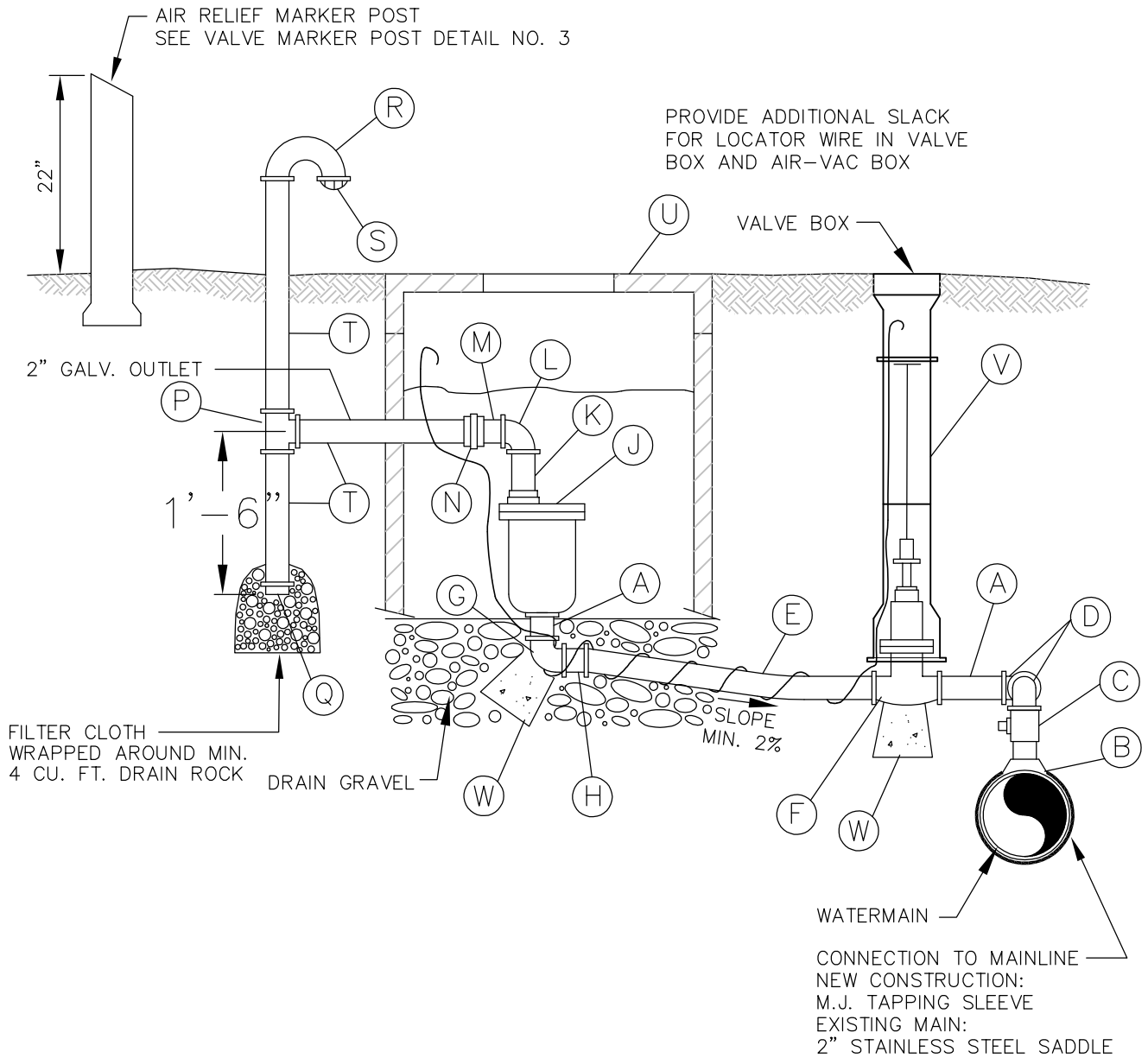
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PLOTTING SCALE NTS	FILE NAME W-DTL-06	DATE APPROVED		



DWG. NO. W-06

FILE NAME: L:\CAD\DETAILS\Districts\WD\_20\Std Details\W-DTL-07&08.dwg  
 PLOTTING DATE: 4/16/2021 1:02 PM  
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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



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

## 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



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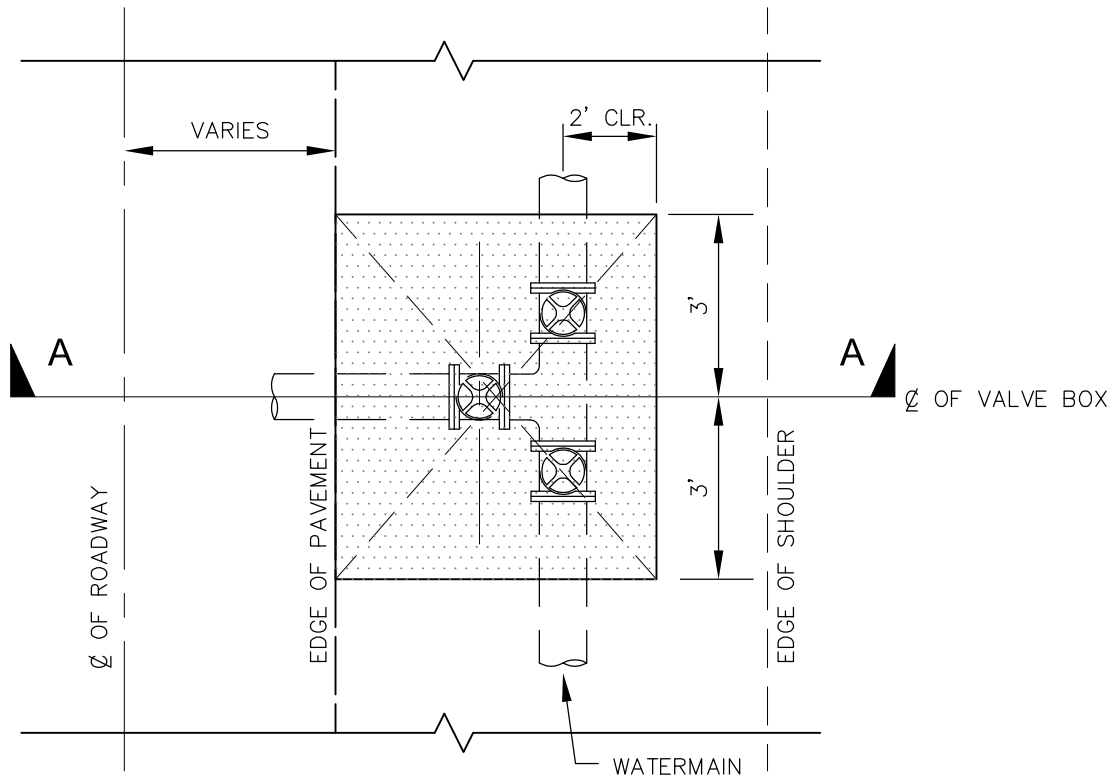
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PLOTTING SCALE NTS	FILE NAME W-DTL-07&08	DATE APPROVED		

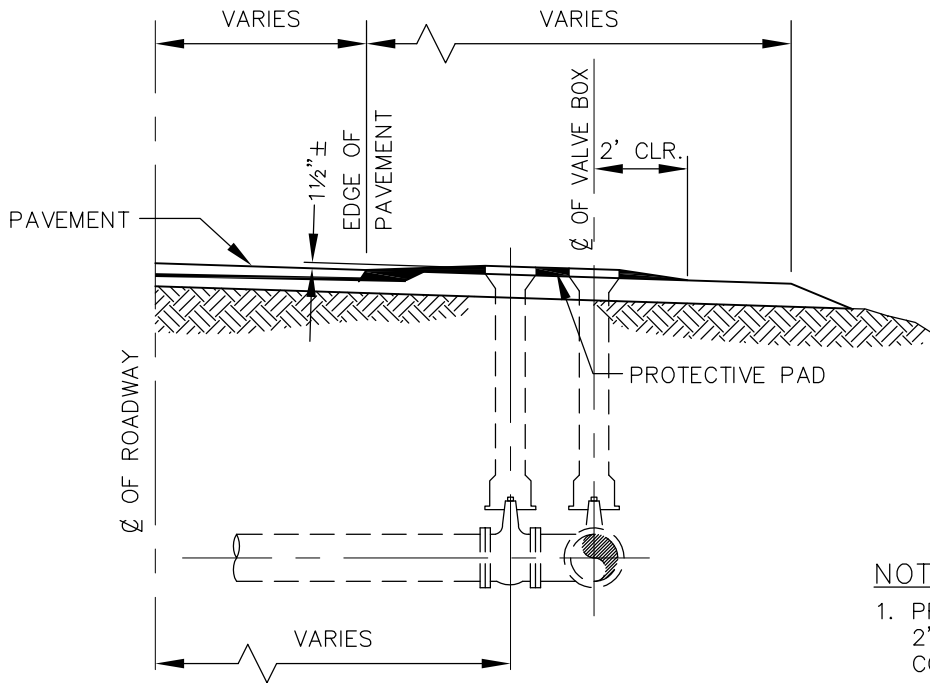


DWG. NO. W-08

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-09.dwg  
 USER: Peter Poulsen  
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**PLAN**



**SECTION A-A**

**NOTES:**

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



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## STANDARD DETAIL VALVE BOX PROTECTIVE PAD

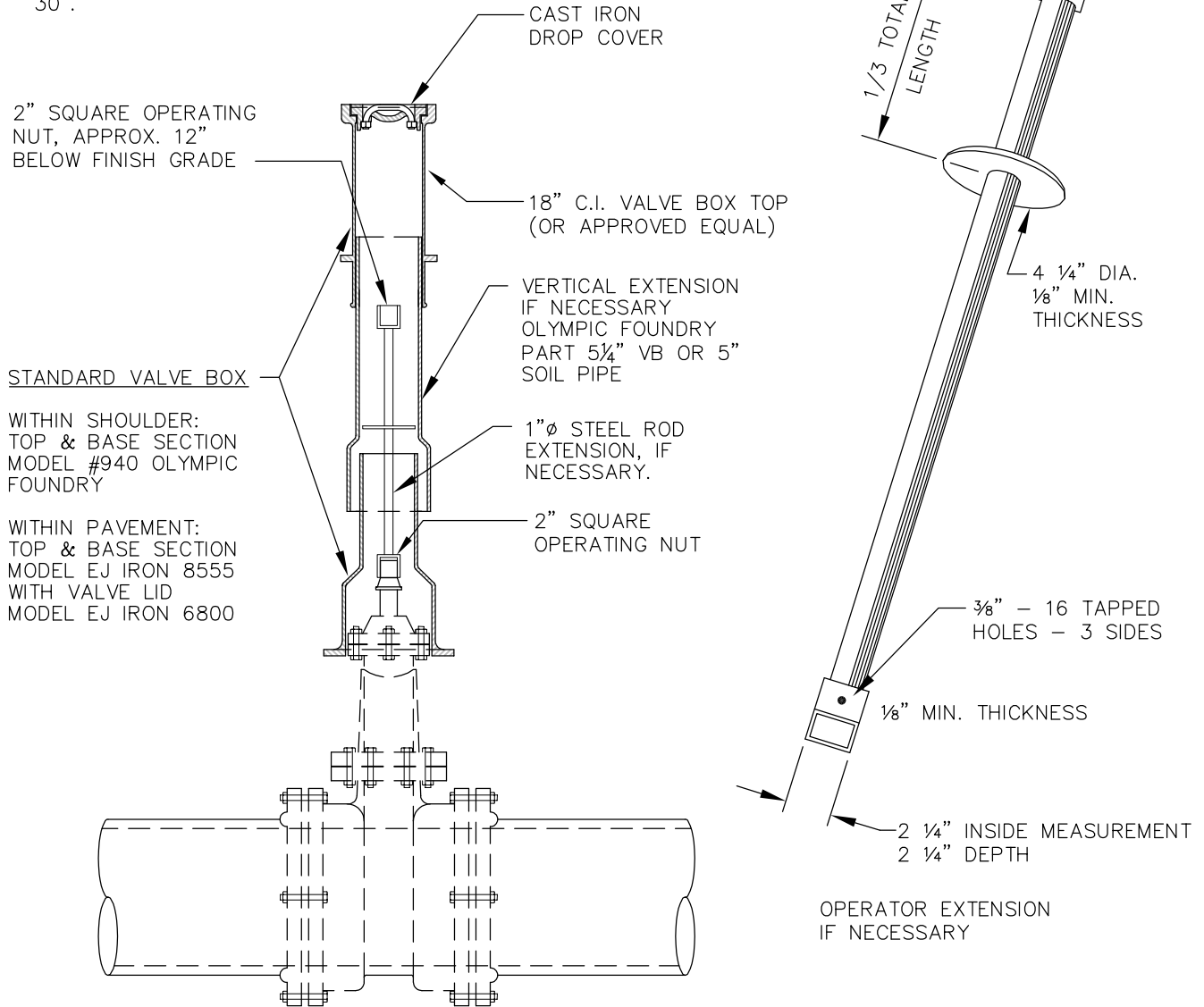
PLOTTING DATE 03-06-19	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-09	DATE APPROVED		



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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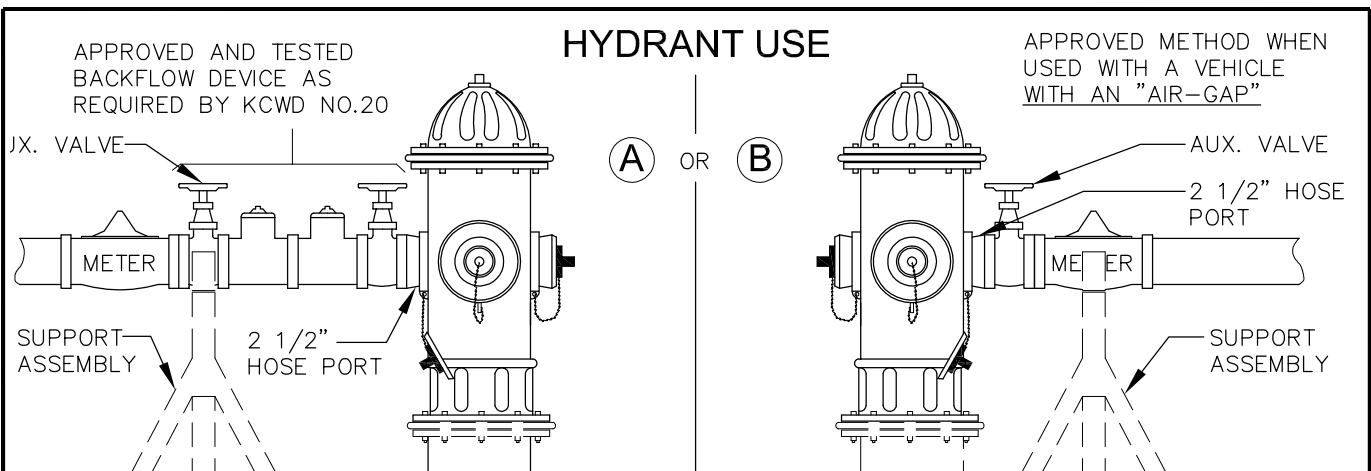
# STANDARD DETAIL VALVE BOX AND VALVE OPERATING EXTENSION

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PLOTTING SCALE NTS	FILE NAME W-DTL-10	DATE APPROVED		



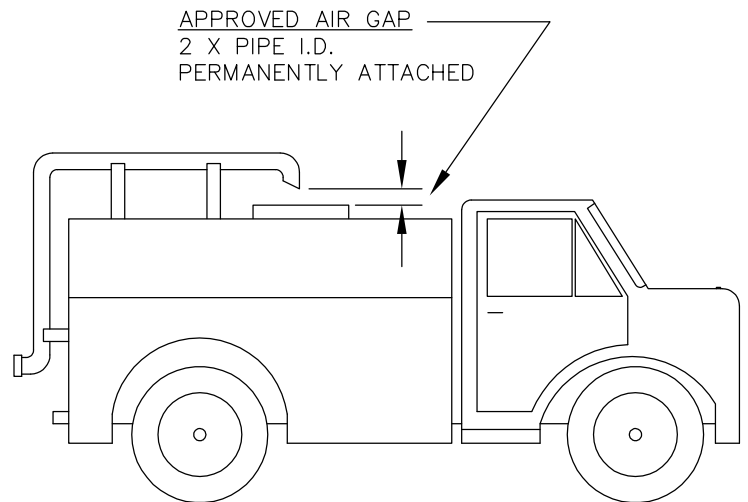
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FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-11.dwg  
PLOT DATE: 3/6/2019 10:31 AM  
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**HYDRANT USE PROCEDURES:**

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



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**STANDARD DETAIL  
FIRE HYDRANT USE  
REQUIREMENTS**

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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

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

#### NOTE:

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

- (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.



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## STANDARD DETAIL 1" WATER SERVICE

PLOTTING DATE 4-16-21	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-12	DATE APPROVED		



DWG. NO. W-12

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-12.dwg

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FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-13.dwg

USER: Peter Poulsen

PLOTTING DATE: 2/2/2021 3:47 PM

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" RESILIENT SEAT  
GATE VALVE WITH  
2" OPERATING NUT

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

SWING JOINT REQUIRED IF  
SERVICE DEPTH > 4'

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

1½" OR 2" HDPE

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

14 GAUGE LOCATING  
WIRE



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

PLOTTING DATE 4-16-21	DRAWN LC	CHECKED PP	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-13	DATE APPROVED		



DWG. NO.

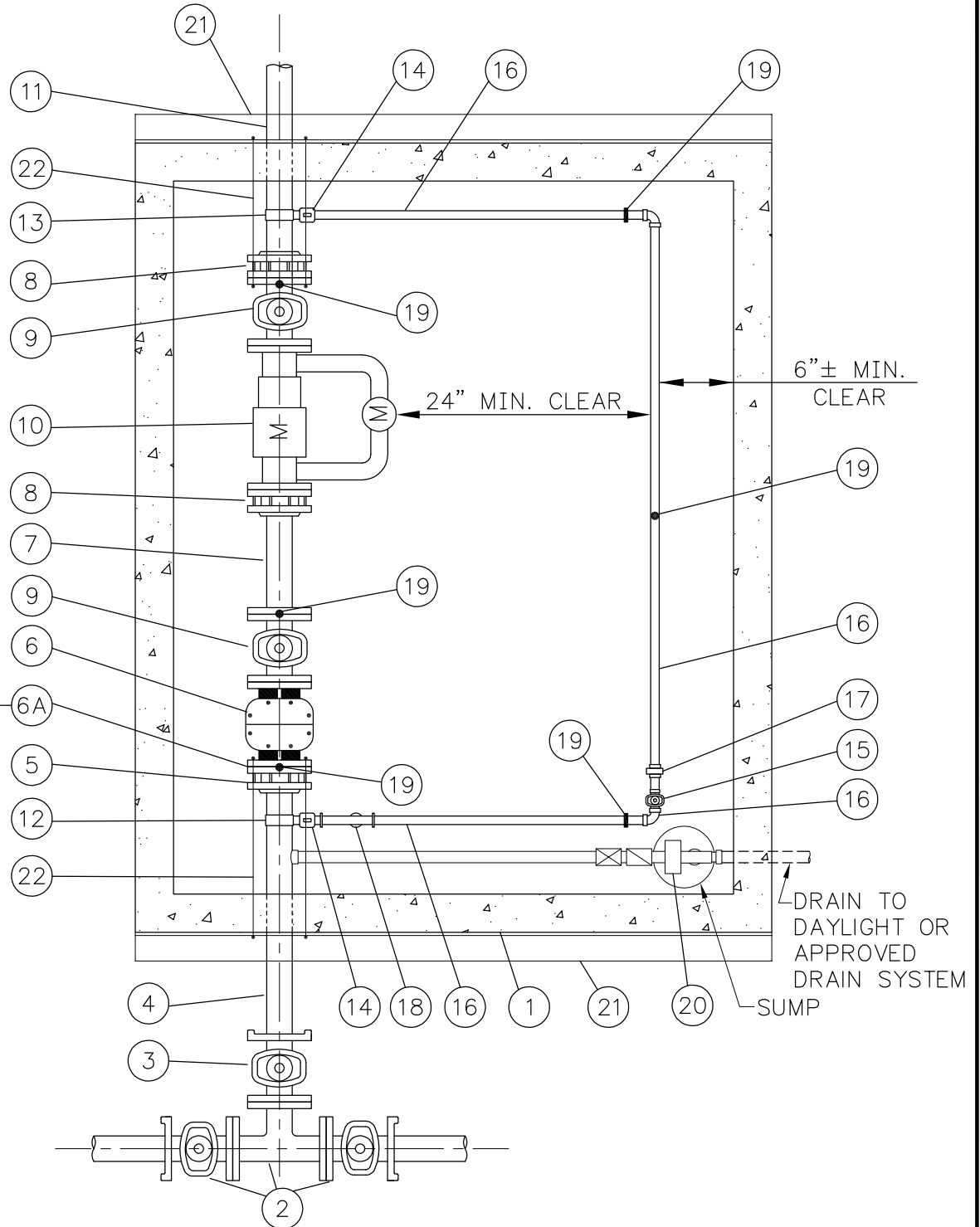
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FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-14&15.dwg

USER: Peter Poulsen

PLOTTING DATE: 4/16/2021 1:24 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.

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		



DWG. NO. W-14

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 PLOTTING 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 APPORVAL 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		

**WATER DISTRICT**  
**AT YOUR SERVICE**  
 20

DWG. NO.	W-15
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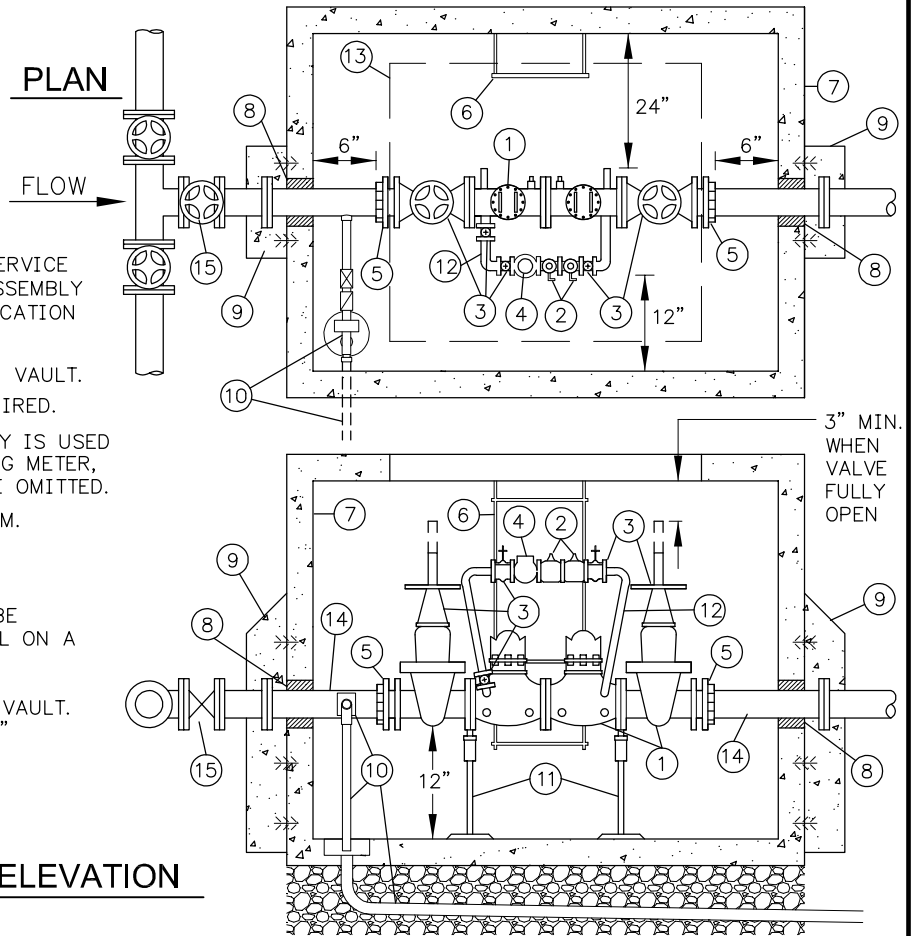


# NOTES:

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

## PLAN

FLOW



## ELEVATION

- 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.
- STATE APPROVED 3/4" DOUBLE CHECK VALVE ASSEMBLY, COMPLETE W/ (2) RESILIENT SEATED BALL VALVES & (4) RESILIENT SEATED TEST COCKS.
- 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.
- 3/4" SENSUS IPERL METER (CUBIC FEET READING) AND MXU
- UNI-FLANGE W/ SETSCREWS.
- GALVANIZED STEEL OR ALUMINUM LADDER W/ 'LADDER UP" EXTENSION. LADDER TO BE ATTACHED TO SIDE OF HATCH AND VAULT FLOOR.
- 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.
- LINK SEALS
- RESTRAIN INLET/OUTLET PIPE FLANGE WITH CAST-IN ANCHOR BLOCKS WITH REBAR EMBEDDED IN VAULT WALL.
- 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.
- TWO ADJUSTABLE PIPE STANCHIONS.
- ALL PLUMBING FOR BY-PASS TO BE COPPER & BRASS.
- ACCESS TO BE CENTERED OVER METER.
- CL. 52 D.I., M.J. W/ RETAINER GLANDS.
- 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

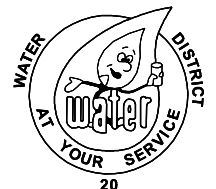


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## STANDARD DETAIL 3" OR LARGER DOUBLE DETECTOR CHECK ASSEMBLY

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PLOTTING SCALE NTS	FILE NAME W-DTL-16	DATE APPROVED		



DWG. NO. W-16

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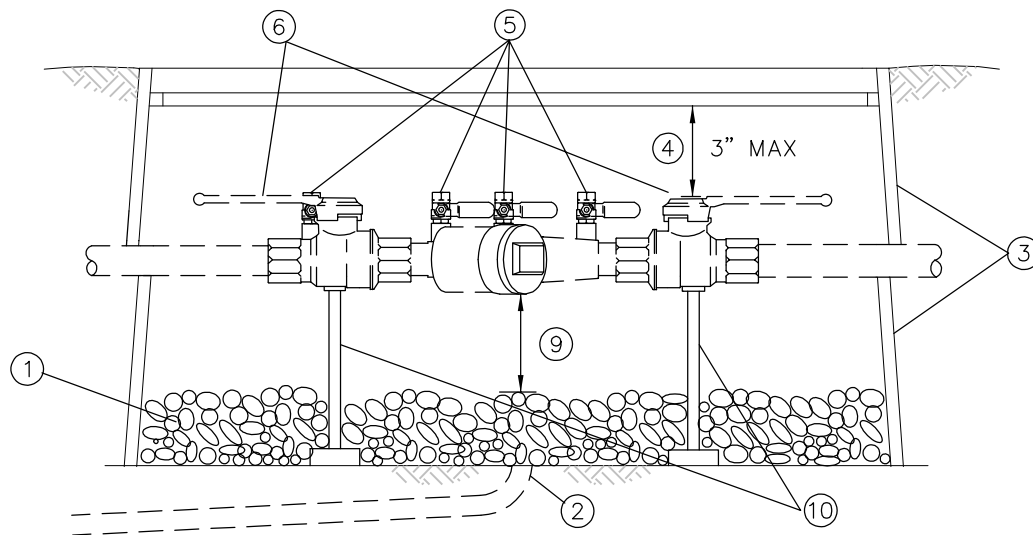
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PLOTTING DATE: 4/16/2021 1:22 PM

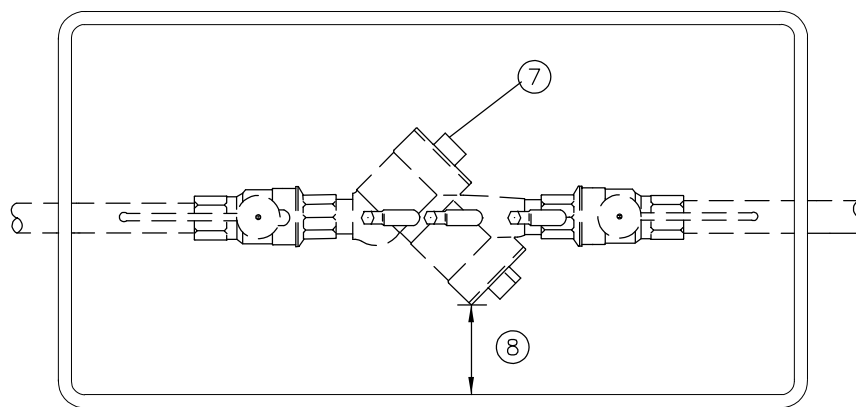
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USER: Peter Paulsen

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



**SECTION**



**PLAN**

- (\*) MUST BE INSTALLELD DOWNSTREAM OF A STANDARD WATER SERVICE WITH WATER METER.
- (\*) 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

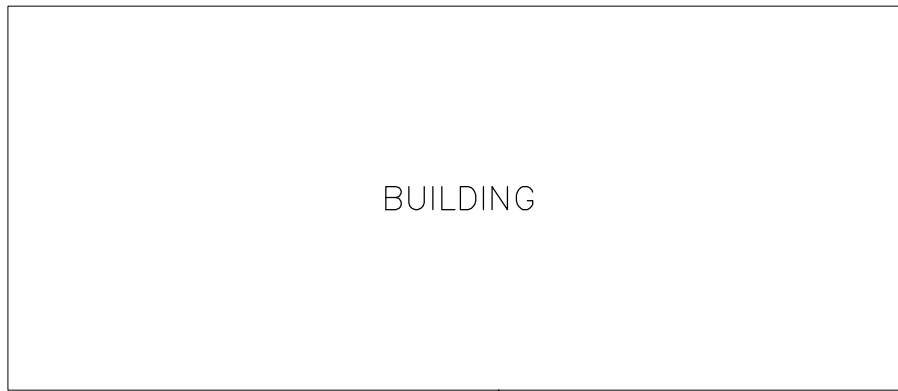
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PLOTTING SCALE NTS	FILE NAME W-DTL-17	DATE APPROVED		



FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-18.dwg

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PLOTTING DATE: 2/2/2021 2:48 PM



DOMESTIC SERVICE LINE.  
INSTALLATION AND MATERIAL  
BY OWNER

TO FIRE SPRINKLER OR IRRIGATION SYSTEM

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

DOMESTIC BUILDING METER  
R/W

STANDARD 1", 1½" OR  
2" WATER SERVICE

FOR CONNECTION  
SEE STD. WATER SERVICE DETAILS

**NOTE:**

ASSEMBLY TO BE MAINTAINED BY  
OWNER AND ANNUAL CERTIFICATION  
REQUIRED.



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## STANDARD DETAIL

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

PLOTTING DATE 4-16-21	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-18	DATE APPROVED		

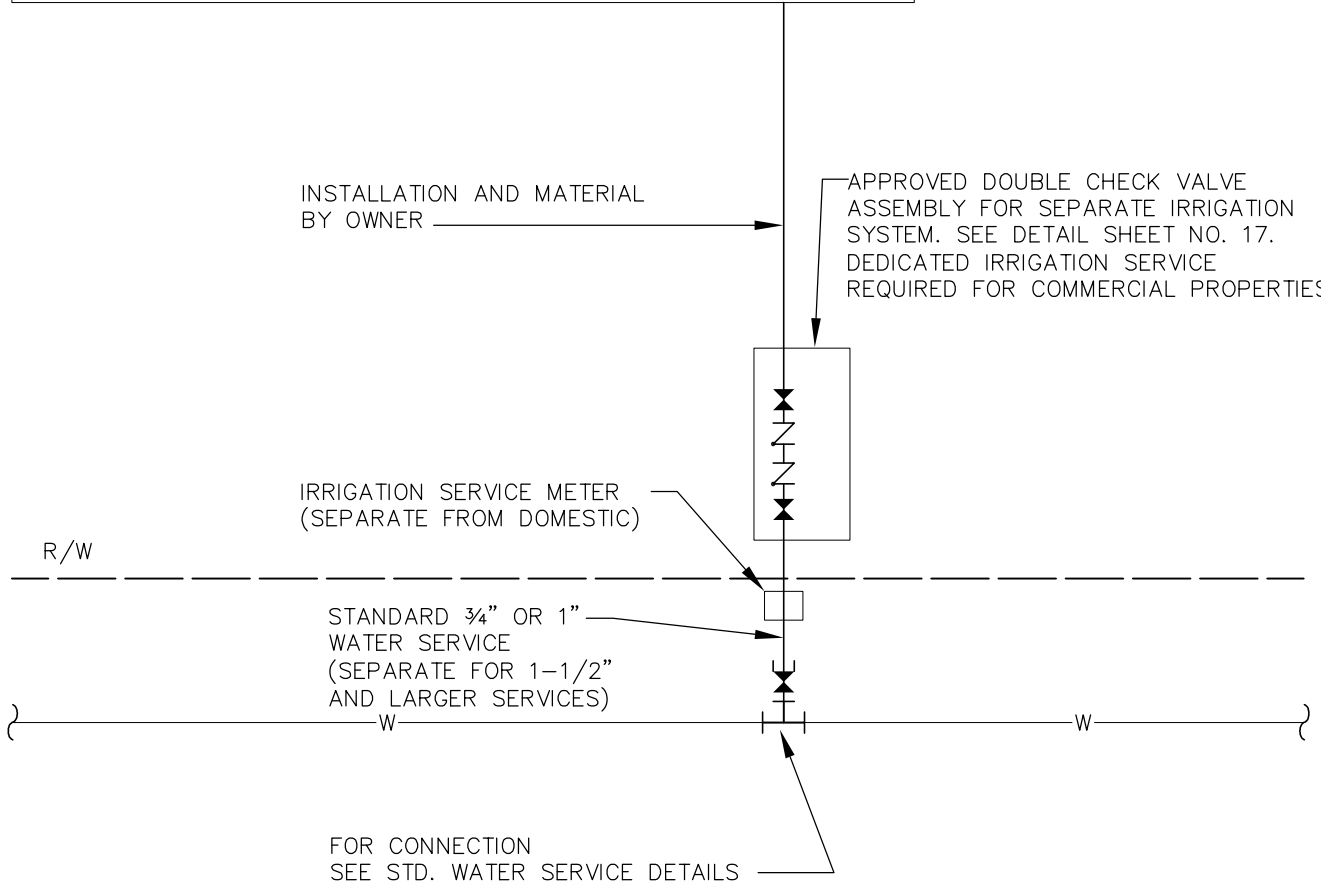


DWG. NO. W-18

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

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



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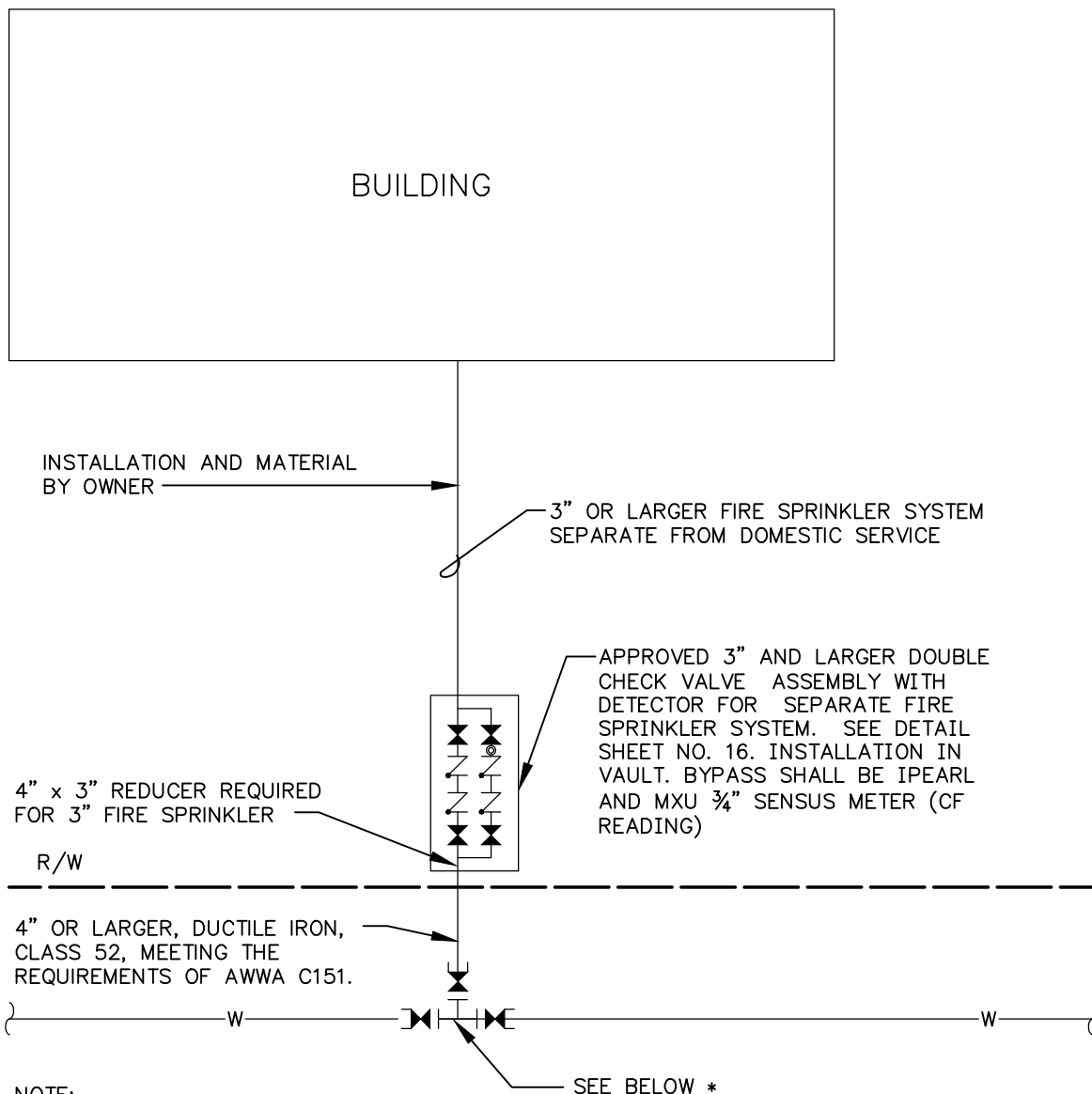
## STANDARD DETAIL 1" OR SMALLER OUTSIDE INSTALLED IRRIGATION SYSTEM SEPARATE FROM THE DOMESTIC SYSTEM

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



DWG. NO. W-19

FILE NAME: L:\CAD\DETAILS\Districts\WD 20\Std Details\W-DTL-20.dwg  
PLOT DATE: 12/27/2021 11:56 AM  
USER: Aaron Jackson



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.



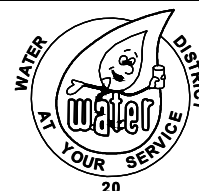
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## STANDARD DETAIL

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

PLOTTING DATE 12-27-21	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-20	DATE APPROVED		



DWG. NO. W-20

FILE NAME: P:\P18\18381 Wd 20 General Services\CAD\engineering\SHEETS\wd 20 Standard Details\_3-06-19\W-DTL-24.dwg

USER: Lincoln Chapman

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

Water District<sup>20</sup>  
KING COUNTY

APPROVED  
CONSTRUCTION  
DRAWINGS: \_\_\_\_\_ DATE: \_\_\_\_\_



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APPROVAL STAMP					
PLOTTING DATE 3-06-19	DRAWN	CHECKED	APPROVED	DISTRICT	
PLOTTING SCALE NTS	FILE NAME W-DTL-24		DATE APPROVED		

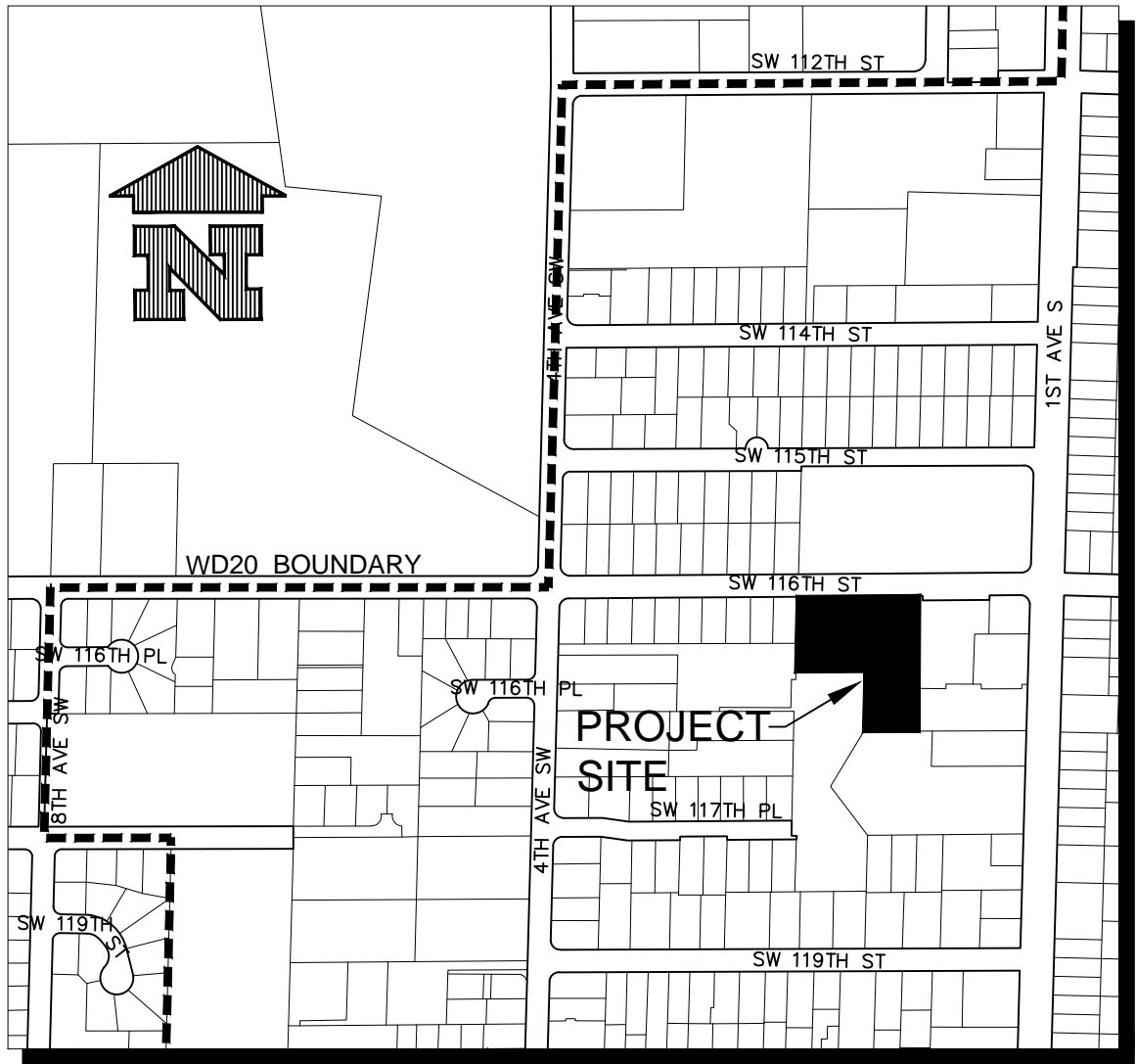


DWG. NO.	W-21
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W-25



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














## VICINITY MAP (TYPICAL)

PLOTTING DATE 3-06-19	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-25	DATE APPROVED		



DWG. NO. W-22

NOTE: ALL SYMBOLS, TEXT, LINES SHOWN AT 50 SCALE

							
FIRE HYDRANT	TEE (MJ)	GATE VALVE (MJ)	90° BEND (FL)	45° BEND (MJ)	22 1/2° BEND (MJ)	BLOW OFF ASSEMBLY (MJ)	REDUCER (MJ)
							
COUPLING	FLxMJ ADAPTOR	PLUG	WATER METER	EXISTING WATER METER	EXISTING FIRE HYDRANT	EXISTING WATER VALVE	TAX LOT NUMBER

-----

WATER EASEMENT (DESIGN)

—————

WATER LINE (DESIGN)  
P-LINE, WIDTH: 1.8

—————

WATER SERVICE

WATER DESIGN TEXT

DESIGN TEXT  
STYLE: SIMPLEX  
HEIGHT: 5

-----

EXISTING WATER LINE

SE 240TH ST

STREET NAME CALLOUTS  
STYLE: ARIAL  
HEIGHT: 10

PLAT TEXT

PLAT NAME CALLLOUTS  
STYLE: HMO  
HEIGHT: 10 OR 8

22

EXISTING PLAT LOT NOS.  
STYLE: SIMPLEX  
HEIGHT: 6

12

PROPOSED PLAT LOT NOS.  
STYLE: ARIAL  
HEIGHT: 7



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## STANDARD PLAN TEXT, SYMBOLS & LINE TYPES

PLOTTING DATE 3-06-19	DRAWN	CHECKED	APPROVED	DISTRICT
PLOTTING SCALE NTS	FILE NAME W-DTL-26	DATE APPROVED		



DWG. NO. W-23

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












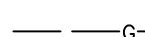
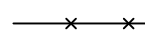








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 USER: Lincoln Chapman  
 PLOT DATE: 3/6/2019 10:31 AM

# LEGEND:

	FH	EXISTING FIRE HYDRANT
	WM	EXISTING WATER METER
	WV	EXISTING WATER VALVE
	BO	EXISTING WATER BLOW-OFF
	MR	VALVE MARKER POST
	GV	GAS VALVE
	TB	TELEPHONE BOX
	PP	POWER POLE
		GUY ANCHOR
	RS	ROAD SIGN
	MB	MAIL BOX
	RE	REBAR & CAP
	PK	PK NAIL
	12" CC	CONCRETE CULVERT
	T	U.G. TELEPHONE LINE
	G	GAS LINE
		FENCE
	AP	APPLE
	CE	CEDAR
	FR	FIR
	HK	HEMLOCK
	PI	PINE
	WW	WEeping WILLOW



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## TYPICAL LEGEND

PLOT DATE 3-06-19	DRAWN	CHECKED	APPROVED	DISTRICT
PLOT SCALE NTS	FILE NAME W-DTL-27	DATE APPROVED		



DWG. NO. W-24