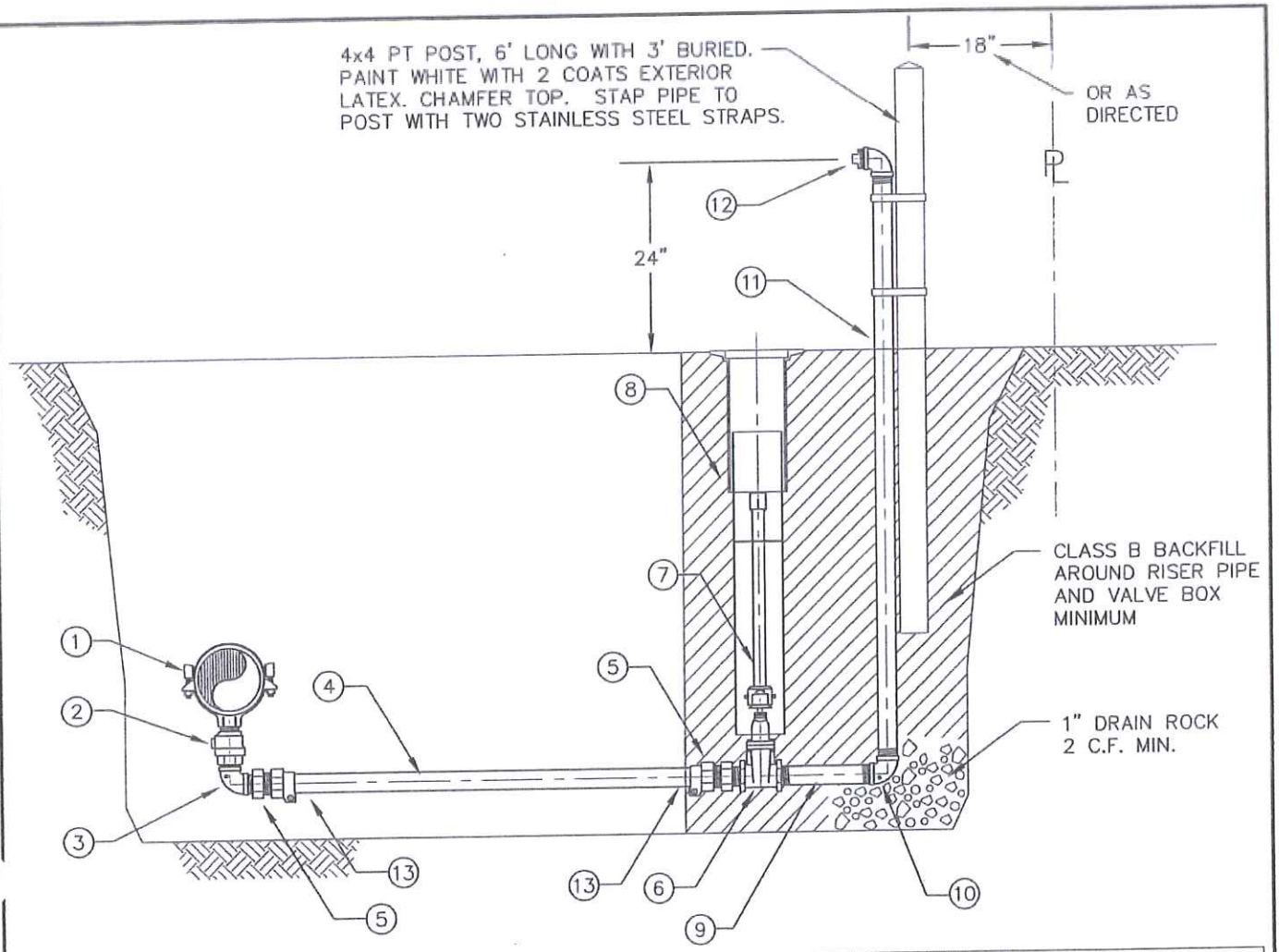
Attachment D



ITEM	SIZE	DESCRIPTION	SPECIFICATION
1	AS REQ'D	SADDLE	FORD 202BS, ROMAC 202BS; 2" FIP TAP
2	2"	BALL CORP. STOP	MIP IN x MIP OUT; FORD FB500-7, MUELLER B-2969, McDONALD 3131B
3	2"	ELBOW	304 SS OR BRASS 90° ELBOW
4	2"	PIPE	HDPE (PE 3408), SIDR 7, 200 PSI, IPS FITTING COMPATIBLE, NSF 61
5	2"	PE PJ COUPLING	PEP PJ x MIP; FORD C86-77-IDR7, MUELLER E-15429, McDONALD 4753-33
6	2"	GATE VALVE	AWWA C509 RESILIENT WEDGE GATE VALVE, THRD. ENDS, 2" NUT
7	AS REQ'D	EXTENSION	VALVE OPERATOR EXTENSION
8	N/A	VALVE BOX	VALVE BOX AND COVER
9	2"	NIPPLE	SCH. 40 304 SS OR BRASS THRD. NIPPLE, 12" LONG
10	2"	ELBOW	304 SS OR BRASS 90° ELBOW, DRILL 1/8" HOLE FOR DRAIN
11	2"	PIPE	SCH. 40 304 SS OR BRASS PIPE AS REQ'D
12	2"	ELBOW/PLUG	304 SS OR BRASS ELBOW WITH MIP THRD. PLUG
13	2"	STIFFENER	304 STAINLESS STEEL INSERT STIFFENER

NOTES:

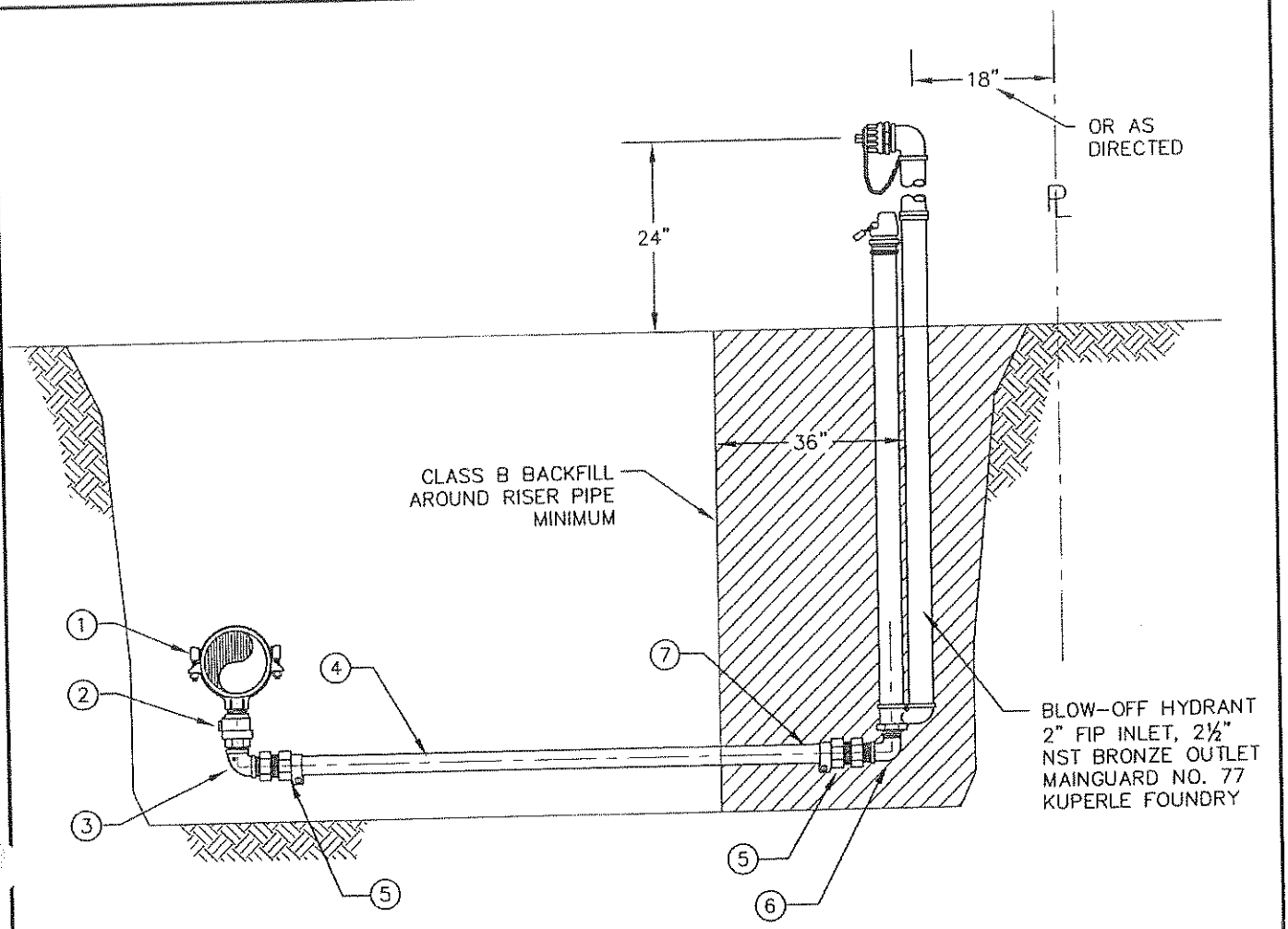
USE ONLY WHERE APPROVED. GENERALLY LOCATED AT LOCAL LOW POINTS IN THE PIPING SYSTEM WHERE HYDRANT IS NOT PRACTICAL. HYDRANTS OR LARGER BLOW-OFF MUST ALSO BE LOCATED NEARBY TO ALLOW PROPER FLUSHING. MAY BE ALLOWED ON 6" AND SMALLER MAINS WHERE LINE PRESSURE EXCEEDS 75 PSI.

City of Adair Village
Grounded in history, growing for the future.

City of Adair Village
6030 NE William R Carr St.
Adair Village, Oregon 97330
(541) 745-5507 Fax: (541) 745-5530

2" BLOW-OFF ASSEMBLY

DETAIL NO.
W-400
04/29/2009



ITEM	SIZE	DESCRIPTION	SPECIFICATION
1	AS REQ'D	SADDLE	FORD/ROMAC 202BS; 2" FIP TAP
2	2"	BALL CORP. STOP	MIP IN x MIP OUT; FORD FB500-7, MUELLER B-2969, McDONALD 3131B
3	2"	ELBOW	304 SS OR BRASS ELBOW
4	2"	PIPE	HDPE (PE 3408), SIDR 7, 200 PSI, IPS FITTING COMPATIBLE, NSF 61
5	2"	PJ COUPLING	PEP PJ x MIP; FORD C86-77-IDR7, MUELLER E-15429, McDONALD 4753-33
6	2"	STREET ELBOW	304 SS OR BRASS STREET ELBOW
7	2"	STIFFENER	304 STAINLESS STEEL INSERT STIFFENER

NOTES:

USE ONLY WHERE APPROVED. GENERALLY LOCATED AT LOCAL LOW POINTS IN THE PIPING SYSTEM WHERE HYDRANT IS NOT PRACTICAL. HYDRANTS OR LARGER BLOW-OFF MUST ALSO BE LOCATED NEARBY TO ALLOW PROPER FLUSHING. MAY BE ALLOWED ON 6" MAINS WHERE LINE PRESSURE EXCEEDS 75 PSI.

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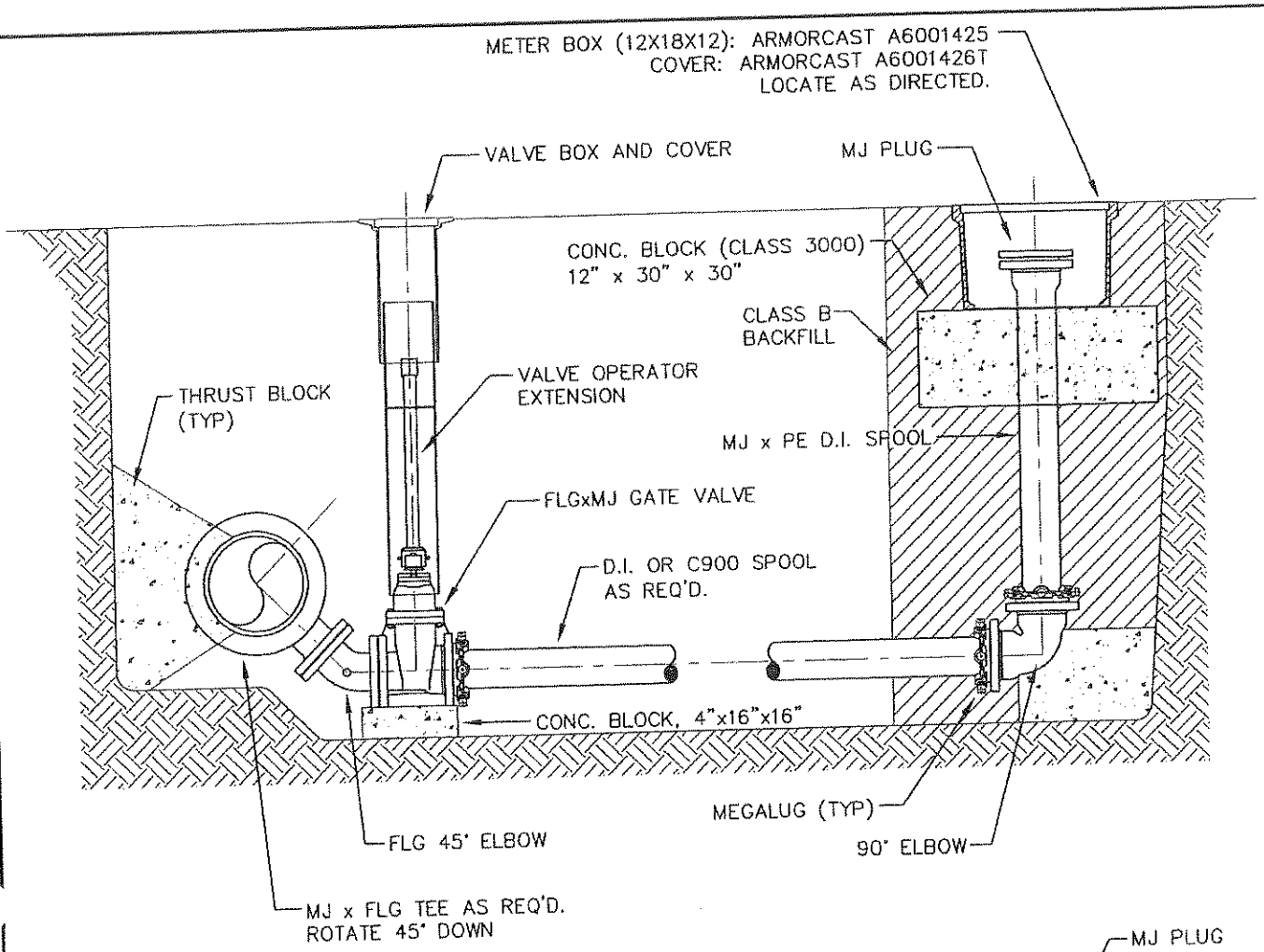
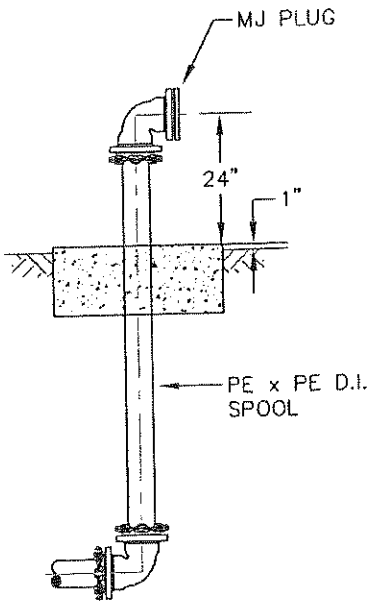
2" BLOW-OFF ASSEMBLY W/ BLOW-OFF HYDRANT

DETAIL NO.
W-401
04/29/2009



MAIN SIZE	BLOW-OFF SIZE
6"	4"
8"	4"
10"	6"
12"	6"
14"	8"
16"	8"
18"	10"
20"	10"
24"	12"



ALTERNATE EXPOSED END
DISCHARGE AS DIRECTED

City of Adair Village
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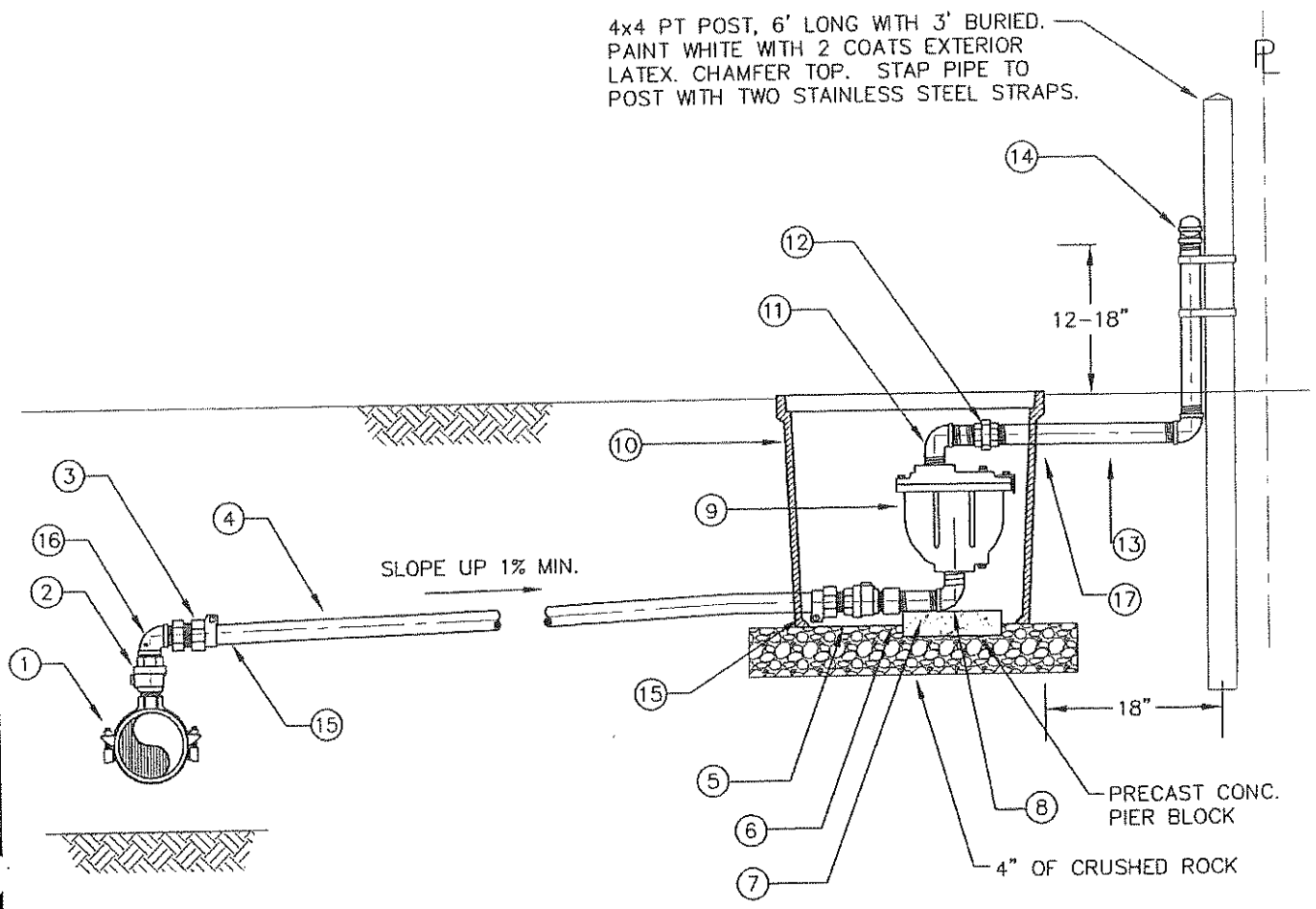
4"+ BLOW-OFF ASSEMBLY

DETAIL NO.
W-405
04/29/2009



ITEM	SIZE	DESCRIPTION	SPECIFICATION
1	AS REQ'D	SADDLE	FORD/ROMAC 202BS; 2" FIP TAP
2	2"	BALL CORP. STOP	MIP IN x MIP OUT; FORD FB500-7, MUELLER B-2969, McDONALD 3131B
3	2"	PJ COUPLING	MIP x PEP PJ; FORD C86-77-IDR7, MUELLER E-15429, McDONALD 4753-33
4	2"	PIPE	HDPE (PE 3408), SIDR 7, 200 PSI, IPS FITTING COMPATIBLE, NSF 61
5	2"	BALL CORP. STOP	PEP PACK JOINT x MIP; FORD FB1101-7, MUELLER E-25029, McDONALD 4704B-33
6	2"	COUPLING	THREADED 304 SS OR BRASS COUPLING, SHORT
7	2"	NIPPLE	THREADED 304 SCH. 40 SS OR BRASS NIPPLE, 6" LONG
8	2"	STREET ELBOW	304 SS OR BRASS 90° STREET ELBOW
9	2"	CAV	COMBINATION AIR VALVE; VAL-MATIC 202C, APCO 145C
10	17"X30"X28"	VAULT	ARMORCAST A6001640TAPCX28 WITH COVER A6001947T
11	2"	STREET ELBOW	304 SS OR BRASS 90° STREET ELBOW AND SHORT SS OR BRASS NIPPLE
12	2"	UNION	STAINLESS STEEL OR BRASS UNION
13	2"	VENT PIPE	SS OR BRASS PIPE AND FITTINGS AS SHOWN
14	2"	TEE VENT	ALUMINUM T-VENT, 20 MESH SS SCREEN, MORRISON BROS. FIG 155
15	2"	STIFFENER	304 STAINLESS STEEL INSERT STIFFENER
16	2"	ELBOW	304 STAINLESS STEEL OR BRASS ELBOW
17	2"	HOLE	CORE DRILL HOLE IN BOX FOR TIGHT FIT AT PIPE USE LINK-SEAL IF NECESSARY TO PREVENT MOVEMENT AND DIRT

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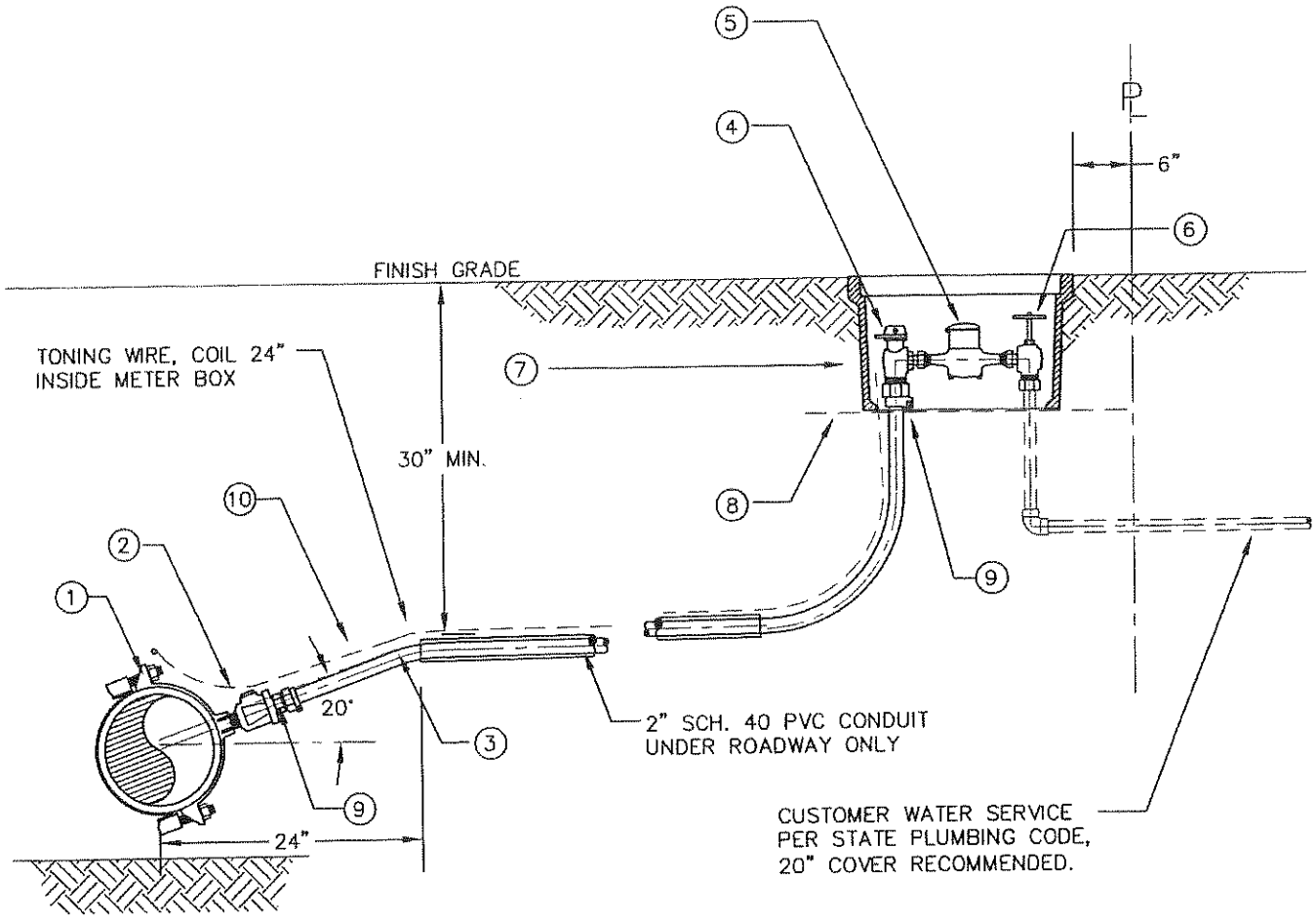
2" COMBINATION AIR VALVE ASSEMBLY

DETAIL NO.
W-500
04/29/2009



ITEM	SIZE	DESCRIPTION	SPECIFICATION
1	AS REQ'D	SADDLE	FORD/ROMAC 202BS; 1" FIP TAP
2	1"	BALL CORP. STOP	MIP x PEP PJ; FORD FB1101-4, MUELLER E-25029, McDONALD 4704B-33
3	1"	SERVICE PIPE	HDPE (PE 3408), SIDR 7, 200 PSI, IPS FITTING COMPATIBLE, NSF 61
4	1"	ANGLE BALL METER VALVE	1" PEP PACK JOINT INLET x 3/4" METER SWIVEL NUT OUTLET FORD BA63-342W, McDONALD 4602B-33
5	5/8"x3/4"	WATER METER	SENSUS SR-II, GALLON READ
6	3/4"	SERVICE VALVE ANGLE GLOBE	METER SWIVEL NUT INLET X FIP OUTLET FORD GA13-444 (NRWD SUPPLIES)
7	12"x20"x12"	METER BOX	ARMORCAST A6001640PCX12, A6001947TDZ (COVER), A6000482T (DROP-IN)
8	16" x 24"	FELT PAPER	90-LB FELT PAPER, ASPHALT SATURATED
9	3/4"	STIFFENER	304 STAINLESS STEEL INSERT STIFFENER
10	10 GA.	TRACER WIRE	10 GA. COPPER WIRE WITH BLUE 30 MIL THICK HDPE INSULATION
			METER BOX/COVER: POLYMER CONCRETE, DROP-IN LID: DUCTILE IRON
			SEE W-150 FOR TRENCH DETAILS

City of Adair Village
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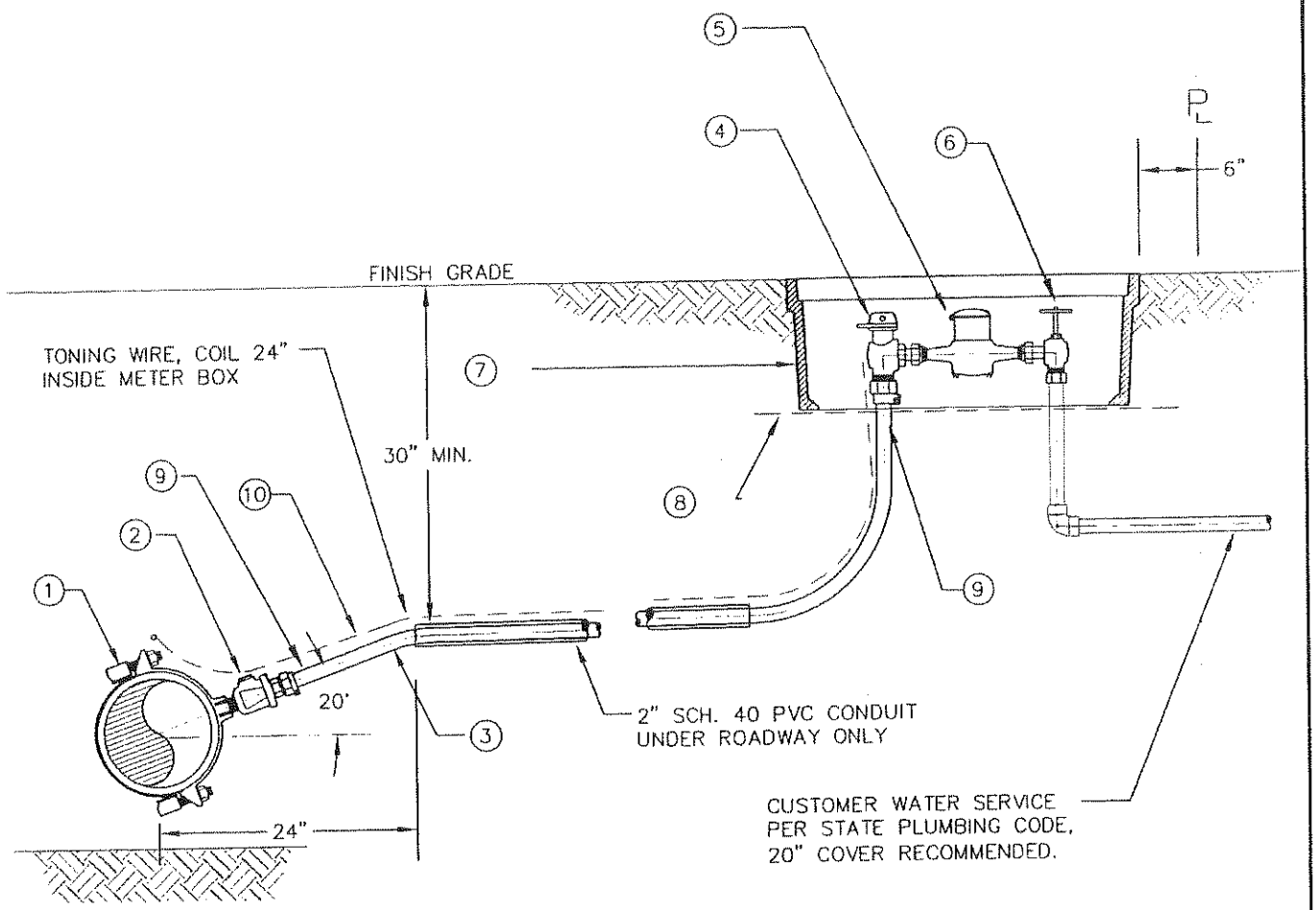
(541) 745-5507 Fax: (541) 745-5530

STANDARD 3/4" WATER SERVICE CONNECTION

DETAIL NO.
W-600
06/23/2009



ITEM	SIZE	DESCRIPTION	SPECIFICATION
1	AS REQ'D	SADDLE	FORD/ROMAC 202BS; 1" FIP TAP
2	1"	BALL CORP. STOP	MIP x PEP PJ; FORD FB1101-4, MUELLER E-25029, McDONALD 4704B-33
3	1"	SERVICE PIPE	HDPE (PE 3408), SIDR 7, 200 PSI, IPS FITTING COMPATIBLE, NSF 61
4	1"	ANGLE BALL METER VALVE	PEP PACK JOINT INLET x METER SWIVEL NUT OUTLET FORD BA63-444W, MUELLER E-24259, McDONALD 4602B-33
5	1"	WATER METER	SENSUS SR-II, GALLON READ
6	1"	SERVICE VALVE ANGLE GLOBE	METER SWIVEL NUT INLET X FIP OUTLET FORD GA13-444 (NRWD SUPPLIES)
7	17"x30"x12"	METER BOX	ARMORCAST A6001640PCX12, A6001947TDZ (COVER), A6000482T (DROP-IN)
8	24" x 36"	FELT PAPER	90-LB FELT PAPER, ASPHALT SATURATED
9	1"	STIFFENER	304 STAINLESS STEEL INSERT STIFFENER
10	10 GA.	TRACER WIRE	10 GA. COPPER WIRE WITH BLUE 30 MIL THICK HDPE INSULATION
			METER BOX/COVER: POLYMER CONCRETE, DROP-IN LID: DUCTILE IRON
			SEE W-150 FOR TRENCH DETAILS

City of Adair Village
6030 NE William R Carr St.
Adair Village, Oregon 97330
(541) 745-5507 Fax: (541) 745-5510

STANDARD 1" WATER SERVICE CONNECTION

DETAIL NO.
W-605
04/20/2009

4.6.8 Compaction: Material (except Class E Backfill) shall be compacted in multiple lifts (6-inch maximum lift) to obtain 95% of the maximum dry density as determined by AASHTO T-99.

4.6.9 All Backfill within public right-of-ways or within 5 feet of a traveled surface shall be Class B Backfill, except where Class E Backfill is required under pavements by Benton County.

4.7 Water Pipe Materials

4.7.1 Water mains shall generally be constructed of PVC unless ductile iron pipe is called for. Exposed piping in vaults and vault penetration spools shall be ductile iron. PVC and DI pipe shall be made in the USA.

4.7.2 PVC pipe, 4- through 12-inch nominal diameter shall be rigid PVC made from class 12454-A or B compounds as defined in ASTM D1784. Pipe shall be NSF 61 approved for use as water distribution piping. Pipe shall be Class 150 meeting DR18, minimum, conforming to all requirements of AWWA C900. Pipe shall integral wall-thickened bells with bonded-in elastomeric gaskets meeting ASTM F477.

4.7.3 PVC pipe, 14- through 30-inch nominal diameter pipe shall meet the requirements of AWWA Standard C905 and shall be NSF 61 approved for use as water distribution piping. Pipe shall integral wall-thickened bells with bonded-in elastomeric gaskets meeting ASTM F477. Joint design shall conform to ASTM D3139. Pipe shall be Class 165 meeting DR25, minimum.

4.7.4 Ductile iron pipe shall be Class 52 minimum thickness manufactured in accordance with ANSI/AWWA C151/A21.51 under method of design outlined in ANSI/AWWA C150/A21.50. Pipe interior shall be cement mortar lined in accordance with ANSI/AWWA C104/A21.4. External pipe coating shall be an asphaltic coating in accordance with ANSI/AWWA C151/A21.51.

4.7.5 Galvanized steel pipe shall be Schedule 40, hot-dipped galvanized, seamless or electric resistance welded type, standard weight, threaded fitting type, conforming to ASTM A53.

4.7.6 Polyethylene pipe, ¾- through 2-inch nominal diameter shall be high-density polyethylene pressure rated pipe (PE3408) meeting cell classification 345464A and having NSF 14/61 certification. Pipe shall be compatible with IPS fittings. SIDR 7, 200 psi, meeting the requirements of ASTM D2239 and AWWA C901. Pipe shall have a 50-year manufacturer's warranty.

4.8 Fittings

4.8.1 Gray and ductile iron fittings shall be used for water main piping. Fittings shall conform to ANSI/AWWA C110/A21.10 Standard (full body) or ANSI/AWWA C153/A21.53 (compact), with 250 psi minimum working pressure rating. Fittings shall be made in the USA as manufactured by U.S. Pipe, Clow, Union, American Ductile Iron Pipe, or Tyler.

4.10.7 Hydrant shall have an internal travel stop nut in the top housing. Operating threads shall be factory lubricated and be O-ring sealed from water, moisture, and dirt.

4.10.8 Hydrant shall be of the traffic type. A frangible barrel and rod coupling designed to break upon traffic impact will protect the hydrant and connecting piping. Main valve shall remain closed upon impact.

4.10.9 Upper operating nut shall be ductile iron, 1½-inch pentagon standard. Opening direction shall be counter-clockwise (CCW).

4.10.10 Hydrant shall have two (2) 2½-inch hose nozzles, and one (1) 4½-inch pumper port. 4½-inch threads shall be NST standard. All threads shall conform to NFPA National Standard Fire Hose Coupling Screw Threads.

4.10.11 Hydrant bottom connection shall be 6-inch nominal diameter mechanical joint. Flange joint may be approved in some cases due to space constraints.

4.10.12 Hydrants shall be painted yellow. Field touch-up will be required if scratched or marred.

4.10.13 Hydrants shall be Kennedy Guardian.

4.11 Miscellaneous Materials

4.11.1 Tracer wire shall be No. 10 AWG, solid or stranded copper with blue colored insulation. Insulation shall be 30 mil thick HDPE designed for direct bury.

4.11.2 Warning tape shall be 6-inch wide, 4-mil thick, blue color, reading "CAUTION – WATERLINE BURIED BELOW."

4.11.3 Other materials not covered herein should generally conform to the 2002 Oregon Standard Specifications and are subject to The City's approval. Service brass shall be as shown in the standard detail drawings.

Section 5 – Water System Installation

5.1 Prepare trench in accordance with the standard detail in a safe manner. Place and compact foundation stabilization materials as required. Notify City to allow for inspection of trench bottom.

5.2 Place and compact pipe bedding material before placing pipe in the trench. Dig depression for pipe bells to provide uniform bearing along the entire pipe length. Thoroughly compact bedding material.

5.3 Prior to lowering pipe into the trench, the Engineer and City's representative will check for damage to the pipe. The Contractor shall repair or replace, as directed, all damaged or flawed pipe prior to installation.