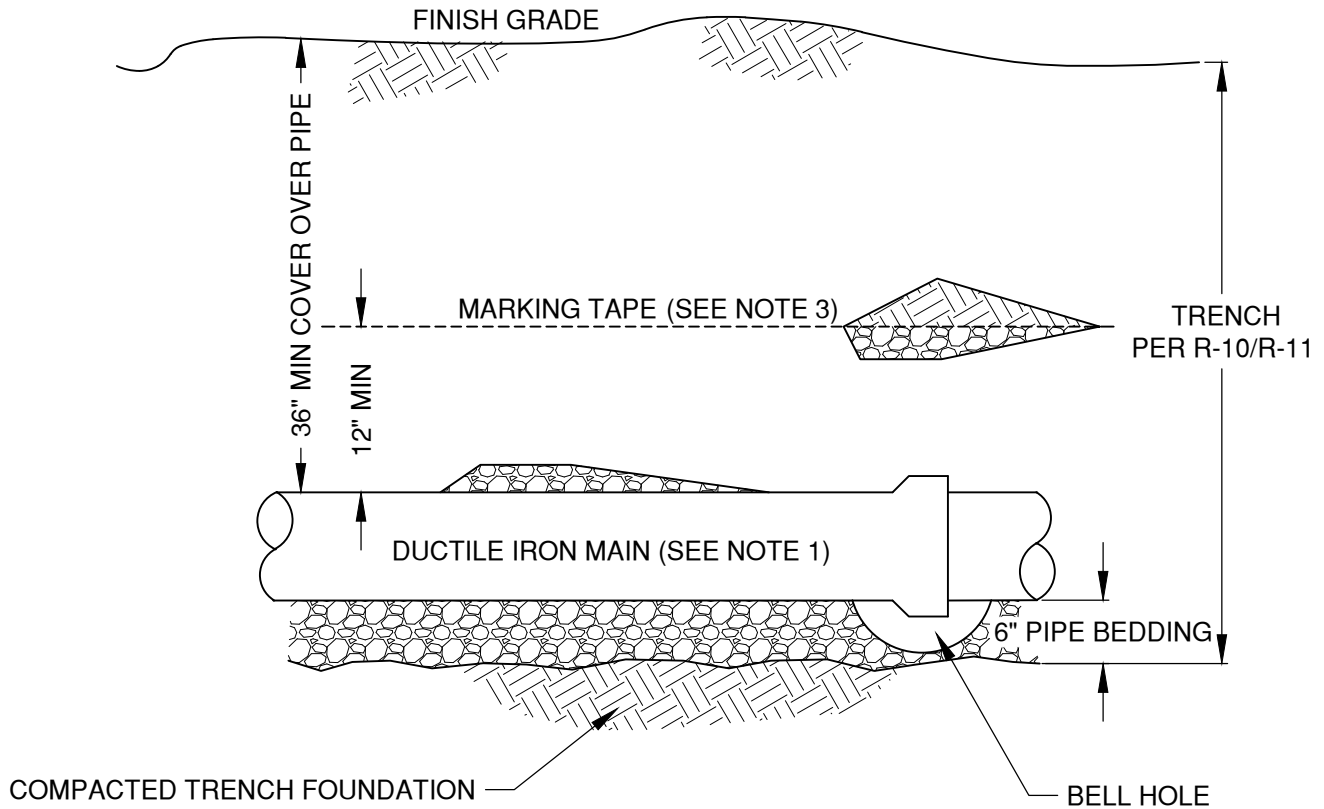


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**CITY OF BEND STANDARD DRAWINGS**


**Water (W)**

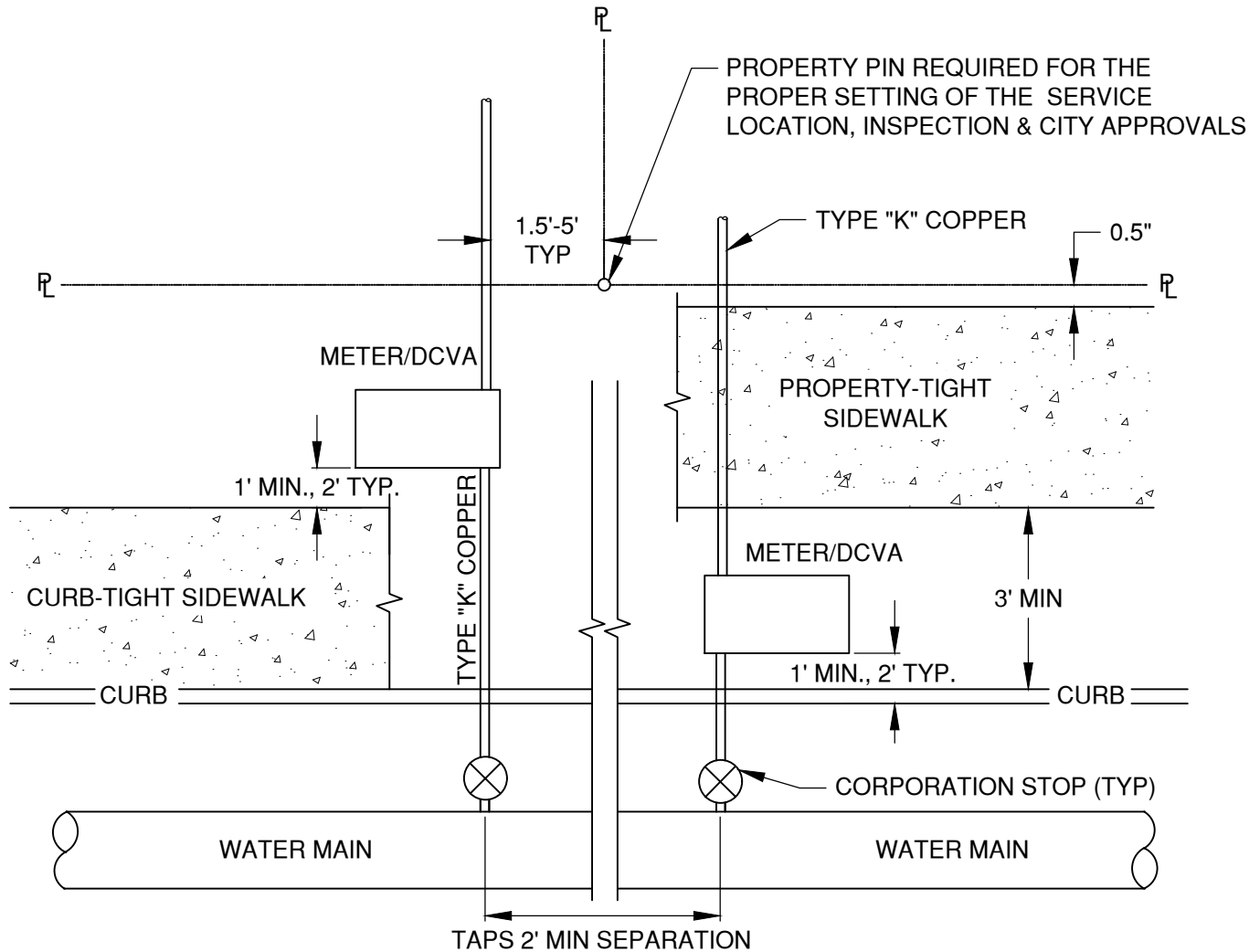
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**NOTES:**

1. REFER TO SPECIFICATION SECTION 01140.41 FOR APPROVED PUSH-ON AND MECHANICAL JOINT RESTRAINT SYSTEMS.
2. WOOD BLOCKING IS NOT PERMITTED IN THE BACKFILLED TRENCH.
3. INSTALL MARKING TAPE ON ALL MAINS AND SERVICES PER SPECIFICATION SECTION 01140.10 AND 01140.45.
4. WHEN INSTALLING A WATER LINE THAT CROSSES BELOW OR WITHIN 18 INCHES ABOVE A NON-POTABLE LINE, FOLLOW OAR 333-061-0050(9). ALL NON-POTABLE LINES SHALL BE TREATED AS "SEWER" LINES AS DESCRIBED IN OAR 333-061-0050(9).
5. COMPACTION SHALL MEET REQUIREMENTS OF SPECIFICATION SECTION 00405.46(c)

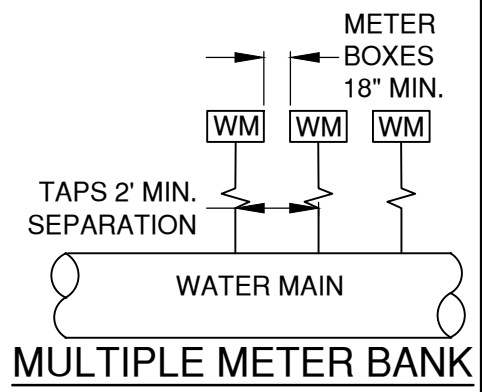
<table border="1"> <tr><td>DRAWN</td><td>AJD</td></tr> <tr><td>DIV</td><td>WATER</td></tr> <tr><td>REV</td><td>DATE</td></tr> </table>	DRAWN	AJD	DIV	WATER	REV	DATE	 <p><b>CITY OF BEND</b></p>	<p align="center"><b>CITY OF BEND</b></p> <p align="center">STANDARD DRAWING</p> <p align="center">710 NW WALL ST., BEND, OREGON 97701</p>	<table border="1"> <tr><td>SCALE</td><td>NTS</td></tr> <tr><td>DATE</td><td>01/31/2022</td></tr> <tr><td>APPR</td><td></td></tr> <tr><td>STD DWG</td><td>W-1</td></tr> </table>	SCALE	NTS	DATE	01/31/2022	APPR		STD DWG	W-1
DRAWN	AJD																
DIV	WATER																
REV	DATE																
SCALE	NTS																
DATE	01/31/2022																
APPR																	
STD DWG	W-1																
		<b>WATER MAIN TYPICAL PROFILE</b>															



**TWO SERVICES SHARING ONE DITCH AT PROPERTY LINE**

**NOTE:**

1. WATER METER BOXES SHALL BE LOCATED IN LANDSCAPE AREAS, NOT IN HARDSCAPE (I.E. SIDEWALKS & DRIVEWAYS). EXCEPTIONS REQUIRE APPROVAL OF CITY ENGINEER
2. SET WATER SERVICES A MINIMUM OF 10' FROM ALL SANITARY, FRANCHISE, STORM, AND ELECTRICAL SERVICES.
3. METER SHALL MATCH SERVICE LINE SIZE OR ONE SIZE SMALLER.
4. A 1" TAP NEAR A BELL SECTION SHALL BE SEPARATED FROM THE BELL BY A MINIMUM OF 2'. TAPS LARGER THAN 1" IN SIZE SHALL BE SEPARATED FROM THE BELL BY A MINIMUM OF 3'.
5. WHERE METERS ARE PLACED IN METER BANKS, A PERMANENT ADDRESS TAG PROVIDED BY THE CONTRACTOR SHALL BE PLACED ON THE METER BOX PRIOR TO 1 YEAR WARRANTY RELEASE.
6. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE PRIOR TO THE METER BEING SET.
7. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.



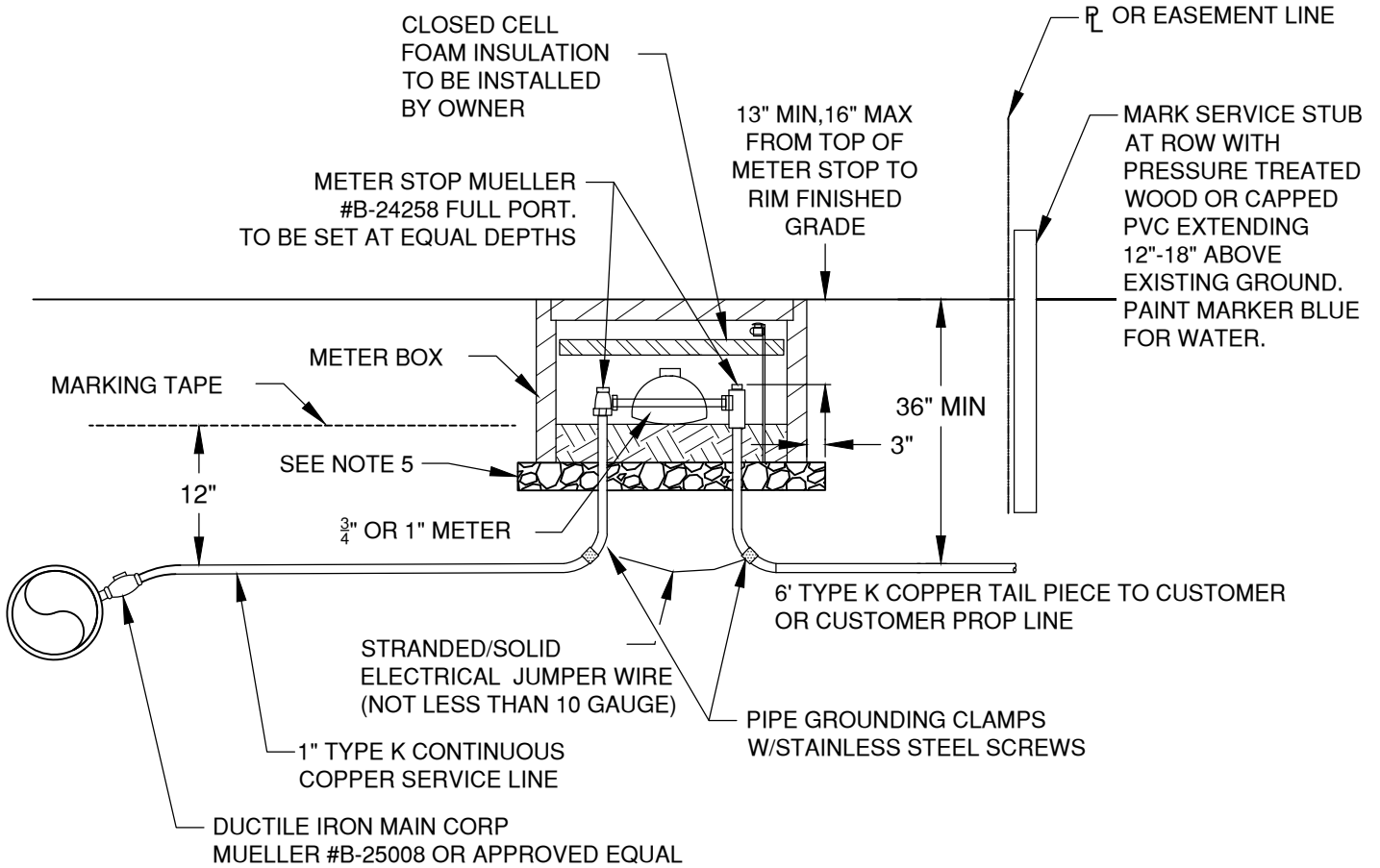
**MULTIPLE METER BANK**

DRAWN AJD	
DIV WATER	
REV	DATE



**CITY OF BEND**  
 STANDARD DRAWING  
 710 NW WALL ST., BEND, OREGON 97701  
**RESIDENTIAL WATER SERVICE INSTALLATION**

SCALE NTS
DATE 01/31/2022
APPR
STD DWG W-4



## TYPICAL SERVICE

**NOTES:**

1. RESIDENTIAL METER BOXES SHALL BE SET PARALLEL W/THE CURB LINE AND SHALL NOT BE INSTALLED WITHIN SIDEWALK OR PAVED AREAS
2. JUMPER SIZE 1" METER SETTER - 1 1/4"x11" SCHEDULE 80 THREADED NIPPLE (DOMESTIC) DRILLED TO PREVENT FLOW
3. METERS ARE TO BE THE SAME SIZE AS THE SERVICE LINE OR ONE SIZE SMALLER.
4. IF AN EXISTING BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
5. METER SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.

DRAWN	AJD
DIV	WATER
REV	DATE



**CITY OF BEND**

### CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

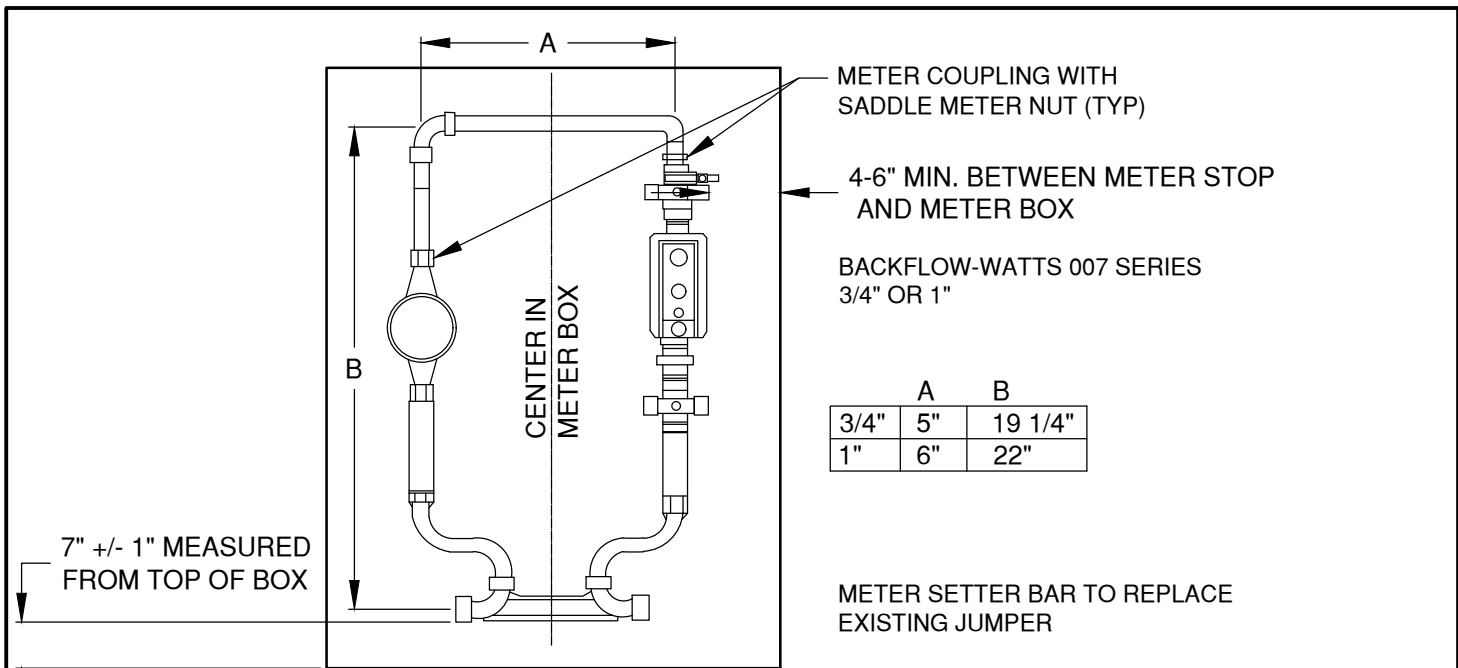
## 3/4"-1" RESIDENTIAL METER SERVICE INSTALLATION

SCALE NTS

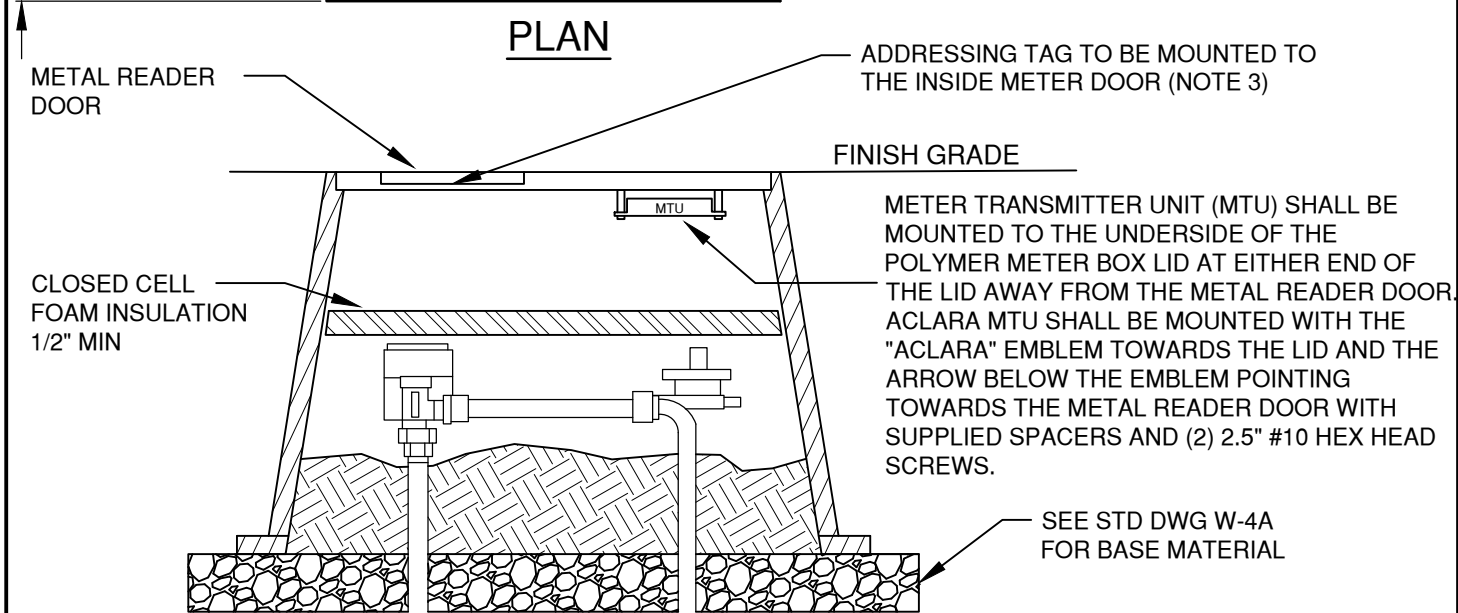
DATE 01/31/2022

APPR

STD DWG W-4A



**PLAN**




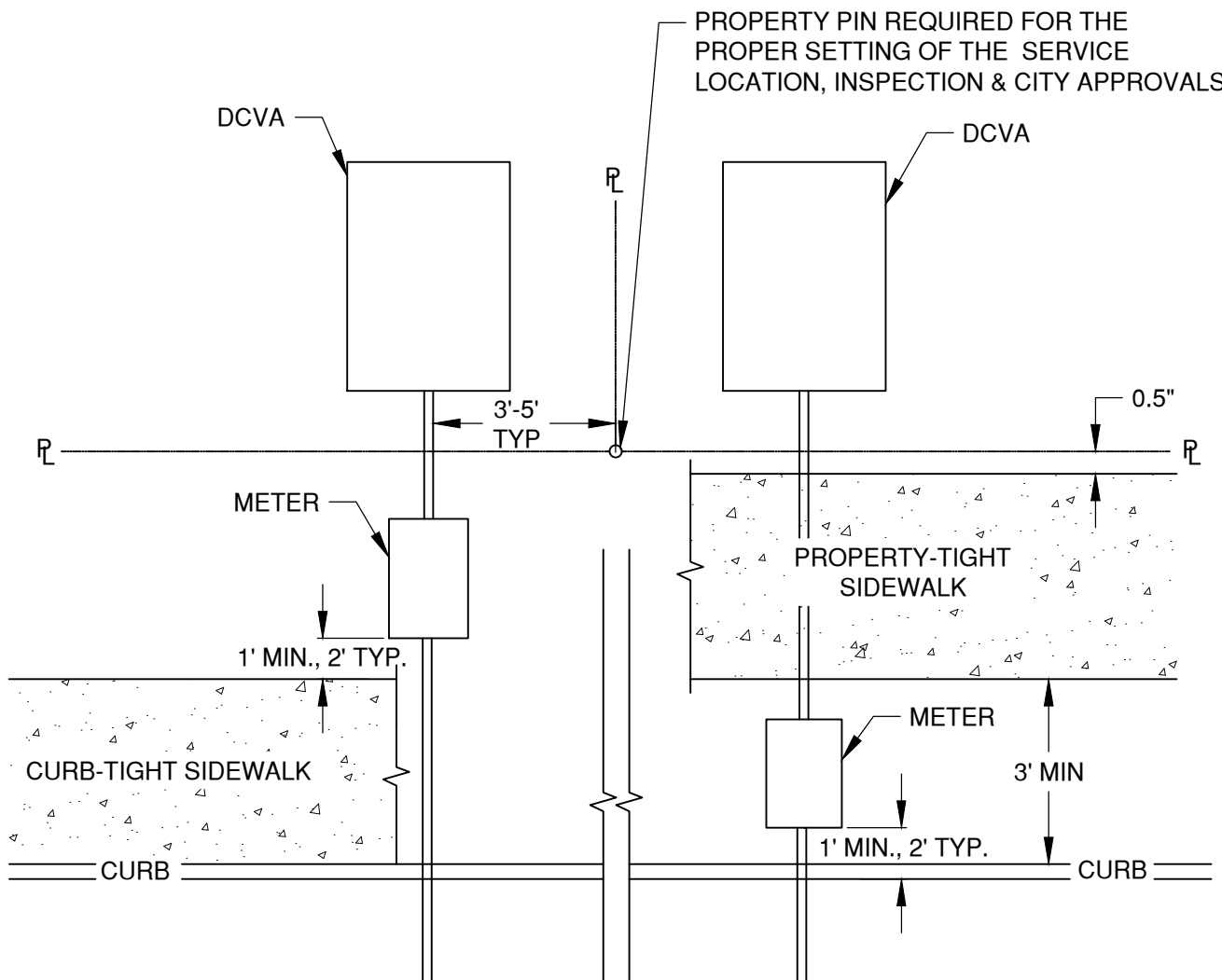
**SECTION**

**OFFSET METER "LOOP" WITH BACKFLOW PREVENTION ASSEMBLY**

**NOTES:**


1. RESIDENTIAL METER BOXES SHALL BE SET PARALLEL W/THE CURB LINE AND SHALL NOT BE INSTALLED WITHIN SIDEWALK OR PAVED AREAS
2. JUMPER SIZE 1" METER SETTER - 1 1/4"x11" SCHEDULE 80 THREADED NIPPLE (DOMESTIC) DRILLED TO PREVENT FLOW
3. WHERE METER BOXES ARE INSTALLED IN A METER BANK, A BRASS OR STAINLESS STEEL TAG/PLAQUE SHALL BE MOUNTED TO THE INSIDE METER DOOR WITH THE LOT ADDRESS STAMPED PRIOR TO 1 YEAR WARRANTY RELEASE.
4. IF THE METER ASSEMBLY/BOX OR SERVICE LINE IS DAMAGED DURING CONSTRUCTION/SITE IMPROVEMENT ACTIVITIES, DURING THE WARRANTY PERIOD, OR IF THE EXISTING METER BOX OR SERVICE LINE DOES NOT MEET CURRENT CITY STANDARDS, THE DEVELOPER/PROPERTY OWNER SHALL UPGRADE THE COMPONENTS OF THE SERVICE THAT IS OUT OF CONFORMANCE.

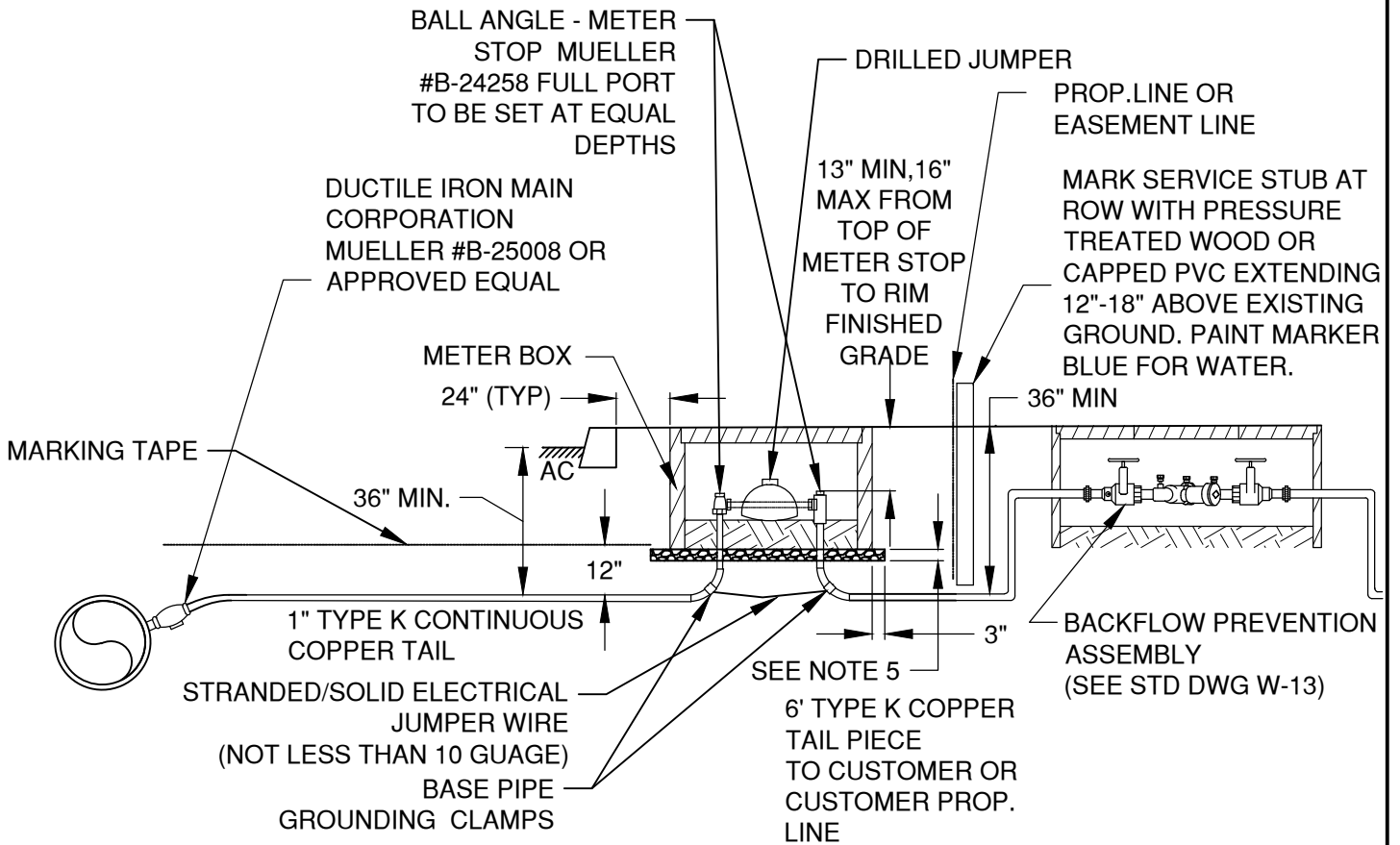
DRAWN AJD	 <p><b>CITY OF BEND</b></p>	<p><b>CITY OF BEND</b></p> <p>STANDARD DRAWING</p> <p>710 NW WALL ST., BEND, OREGON 97701</p>	SCALE NTS
DIV WATER			DATE 01/31/2022
REV DATE			APPR
		<b>3/4"-1" RESIDENTIAL METER SERVICE INSTALLATION</b>	STD DWG W-4B



**NOTES:**

1. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK VALVE ASSEMBLY TO BE LOCATED ON PRIVATE PROPERTY.
2. WATER METER BOXES SHALL BE LOCATED IN LANDSCAPE AREAS WHEN POSSIBLE, SEE STD DWG W-5E FOR LOCATING METER BOX IN HARD SURFACE.
3. SET WATER SERVICES A MINIMUM OF 10' FROM ALL SANITARY, FRANCHISE, STORM, AND ELECTRICAL SERVICES. ALL TREE WELLS SHALL BE A MINIMUM 6 FEET FROM THE METER BOX INSTALLATION.
4. BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED ON PRIVATE PROPERTY.
5. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
6. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.

DRAWN AJD		<b>CITY OF BEND</b> STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 01/31/2022
REV DATE			APPR
	<b>CITY OF BEND</b>	<b>COMMERCIAL &amp; IRR METER SERVICE INSTALLATION</b>	STD DWG W-5



## TYPICAL 1" SERVICE WITH METER

**NOTES:**

1. COMMERCIAL METERS NOT TO BE LESS THAN 1-INCH. METER SIZE TO MATCH SERVICE LINE SIZE.
2. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK VALVE ASSEMBLY TO BE LOCATED ON PRIVATE PROPERTY PER STD DWG W-5.
3. COMMERCIAL METERS WILL NOT BE SET UNTIL BACKFLOW PREVENTION ASSEMBLY IS IN PLACE.
4. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
5. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.

DRAWN AJD	
DIV WATER	
REV	DATE



**CITY OF BEND**

### CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

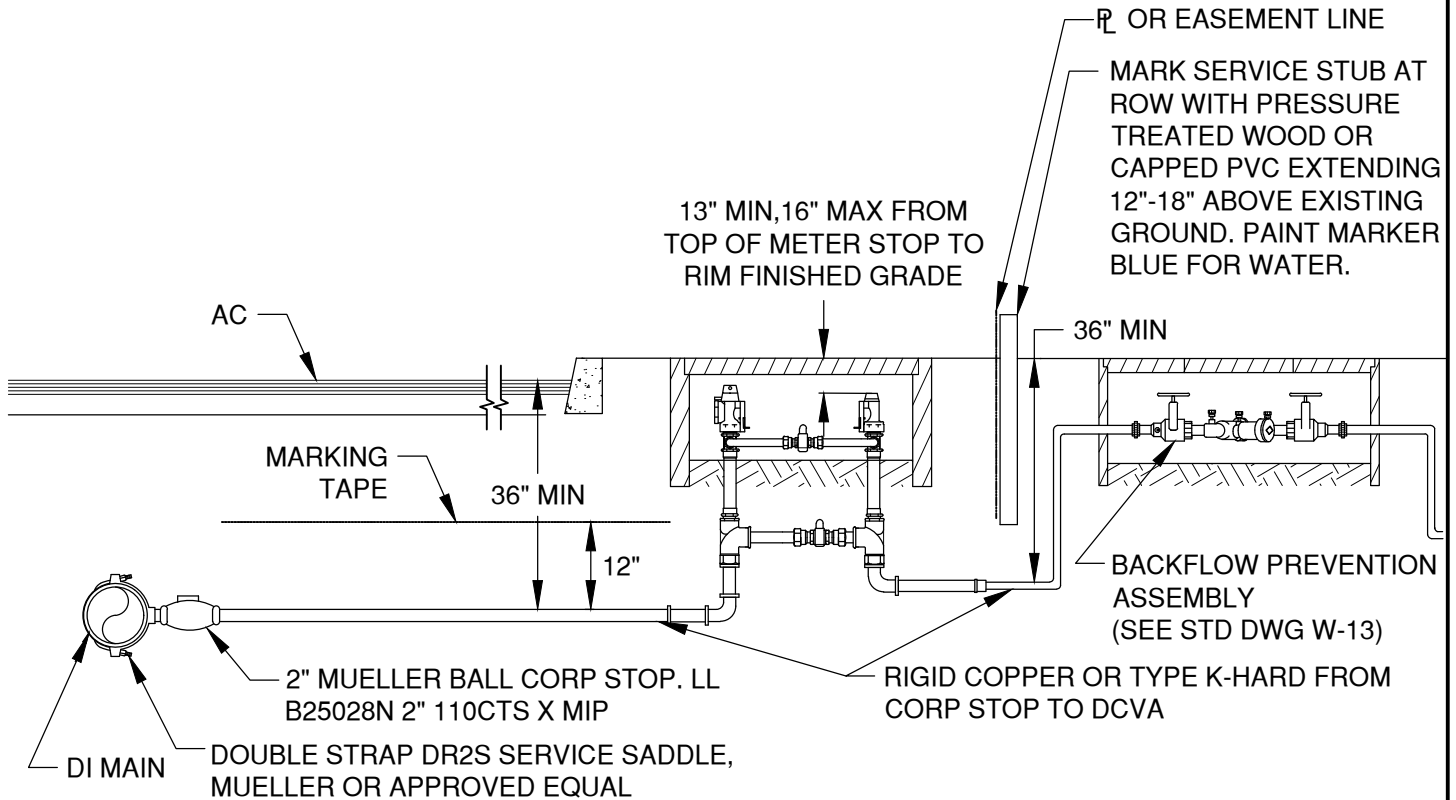
**1" COMMERCIAL & IRR METER SERVICE INSTALLATION**

SCALE NTS

DATE 01/31/2022

APPR

STD DWG W-5A



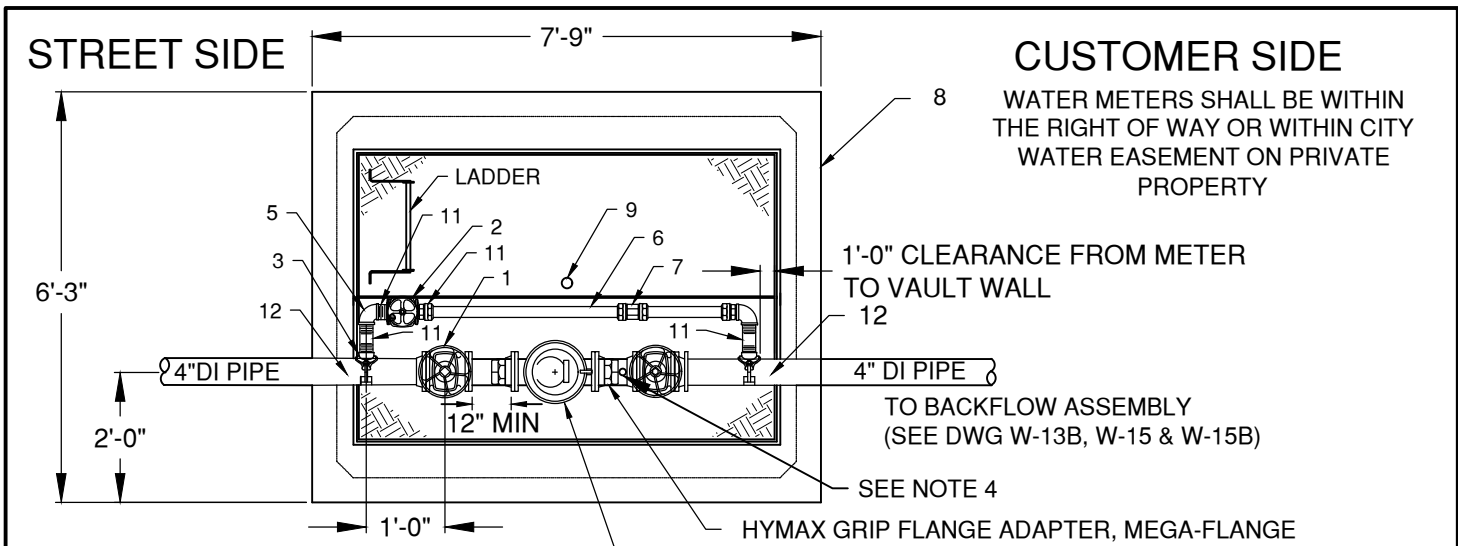
## TYPICAL 2" SERVICE WITH 1-1/2" AND 2" METER

**NOTES:**

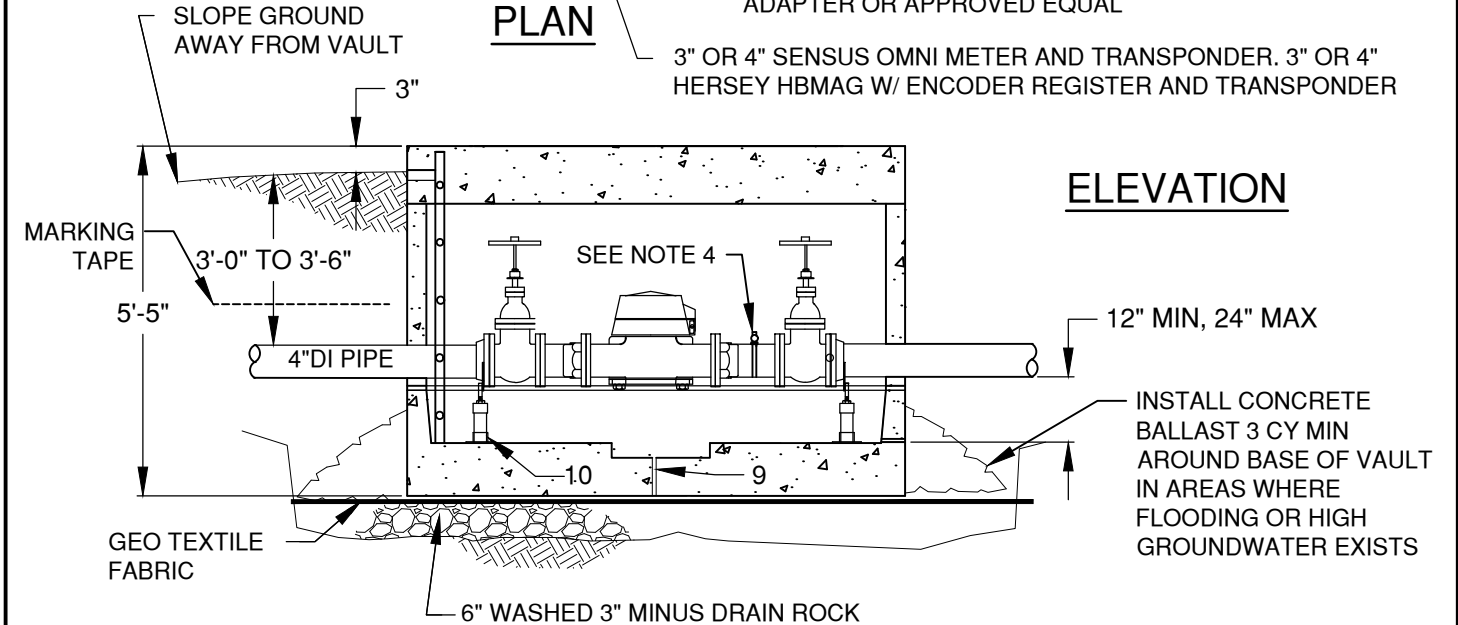
1. COMMERCIAL METERS WILL NOT BE SET UNTIL BACKFLOW PREVENTION ASSEMBLY IS IN PLACE
2. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK TO BE LOCATED ON PROPERTY
3. ALL METERS LESS THAN 2" WHEN USING A 2" SERVICE LINE ARE TO BE REDUCED WITHIN THE 2" METER SETTER
4. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
5. DOUBLE CHECK ASSEMBLY SHALL BE INSTALLED USING THE UNIFORM BUILDING CODE (UBC) AND SHALL BE LOCATED ON A PRIVATE PROPERTY. THE ABOVE DIAGRAM IS FOR REFERENCE ONLY AND IS SUBJECT TO CHANGE BASED ON A REVIEW BY THE UBC PLANS EXAMINER.
6. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY

DRAWN AJD	 <b>CITY OF BEND</b>	<b>CITY OF BEND</b> STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER		<b>1 1/2" &amp; 2" COMMERCIAL AND IRRIGATION METER SERVICE INSTALLATION</b>	DATE 01/31/2022
REV DATE			APPR
			STD DWG W-5B





**PLAN**

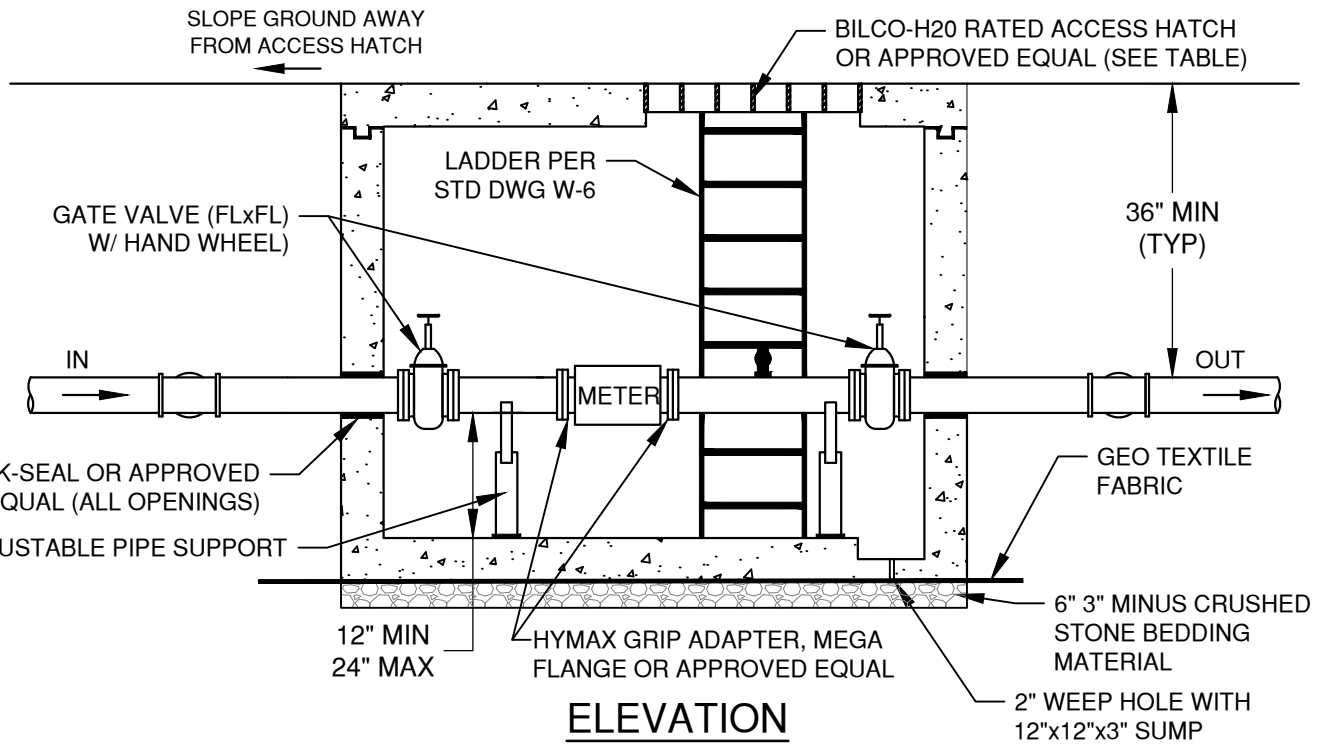
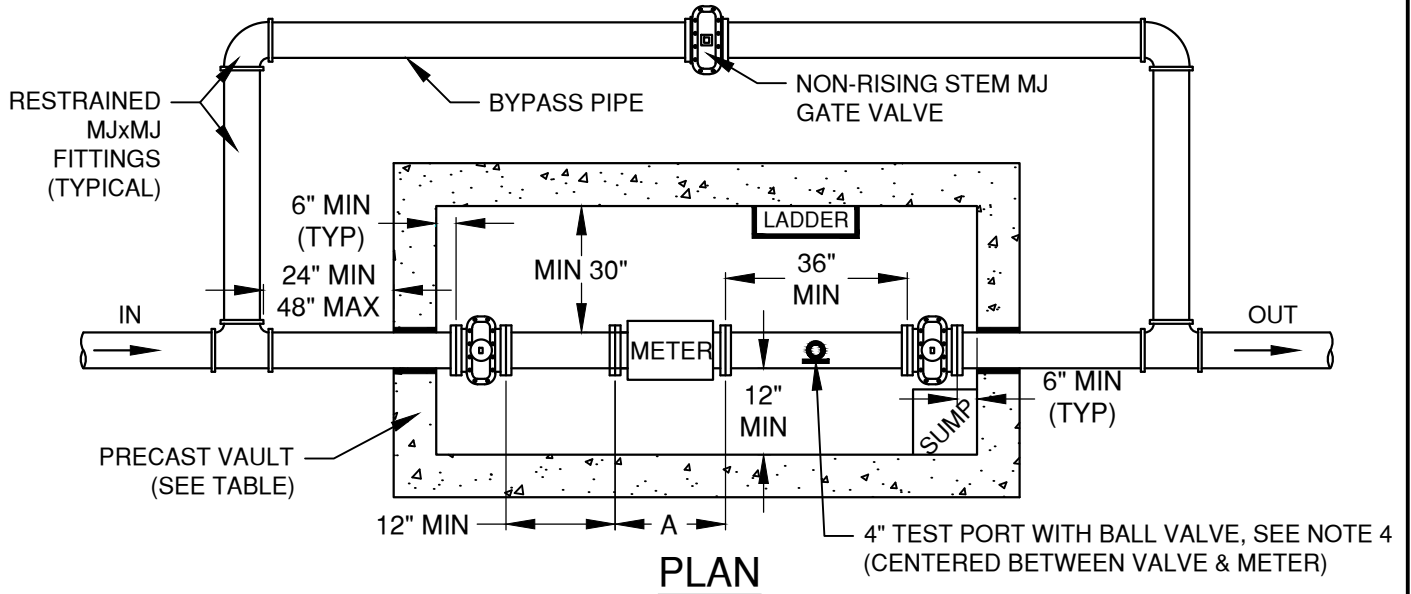


**ELEVATION**

ITEM	QTY	DESCRIPTION
1	2EA	4"x3" FLG x FLG REDUCER & 3" FLG GATE VALVE WITH HANDWHEEL OR
2		4"x4" FLG GATE VALVE WITH HANDWHEEL
2	1	2" SE GATE VALVE AWWA C509
3	2	DOUBLE STRAP DR-25 SERVICE SADDLE, MUELLER OR APPROVED EQUAL
5	2	2" BRASS 90° COMP x COMP
6	2	2" TYPE K HARD COPPER PIPE
7	1	2" COMP UNION
8	1	OLD CASTLE 675-WA WITH OPENING FOR BILCO DOOR JD-3AL AND OSHA APPROVED LADDER (SEE STD DWG W-6)
9	1	WEEP HOLE (12"x12"x3" SUMP)
10	2	2" PIPE STAND "STANDON"
11	4	2" MPT x COMP ADAPTER
12	2	4"x3" REDUCER (WHERE 3" METER IS INSTALLED)

- NOTES:
1. SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT
  2. ENGINEER TO PROVIDE PIPE RESTRAINT DETAIL ENTERING & EXITING VAULT
  3. METER SIZE TO MATCH SERVICE SIZE OR ONE SIZE SMALLER.
  4. WHERE THE METER DOES NOT PROVIDE A TEST PORT, A 2" TEST PORT SHALL BE INSTALLED WITH 2" TAP SADDLE, 2" BRASS BALL VALVE, AND 2" BRASS NIPPLE.

DRAWN AJD DIV WATER REV DATE		<b>CITY OF BEND</b> STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
<b>CITY OF BEND</b>			DATE 01/31/2022
		<b>3" &amp; 4" COMMERCIAL METER INSTALLATION</b>	APPR
			STD DWG W-5C



**NOTES:**

1. CONTRACTOR TO BRING ERT'S TO PUBLIC WORKS FOR INSTALLATION AND INSPECTION
2. ENGINEER TO PROVIDE PIPE RESTRAINT DETAIL ENTERING & EXITING VAULT
3. METER SIZE TO MATCH SERVICE SIZE OR ONE SIZE SMALLER.
4. WHERE THE METER DOES NOT PROVIDE A TEST PORT, A 4" TEST PORT SHALL BE INSTALLED WITH 4" TAPPING SADDLE, 4" BRASS BALL VALVE, AND 4" BRASS NIPPLE.

METER (INCH)	BYPASS (INCHES)	VAULT*	BILCO DOOR	A (INCHES)
6"	4"	810-LA	J-5AL	15"±
8"	6"	810-LA	JD-3AL	17"±
10"	8"	612-LA	JD-3AL	20"±
12"	12"	612-LA	JD-3AL	24"±

\* VAULT SIZES MAY VARY BY ENGINEER DESIGN PROVIDE MIN DIMENSIONS ARE MAINTAINED

DRAWN AJD  
DIV WATER  
REV DATE



CITY OF BEND

**CITY OF BEND**

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

**6" AND LARGER COMMERCIAL METER INSTALLATION**

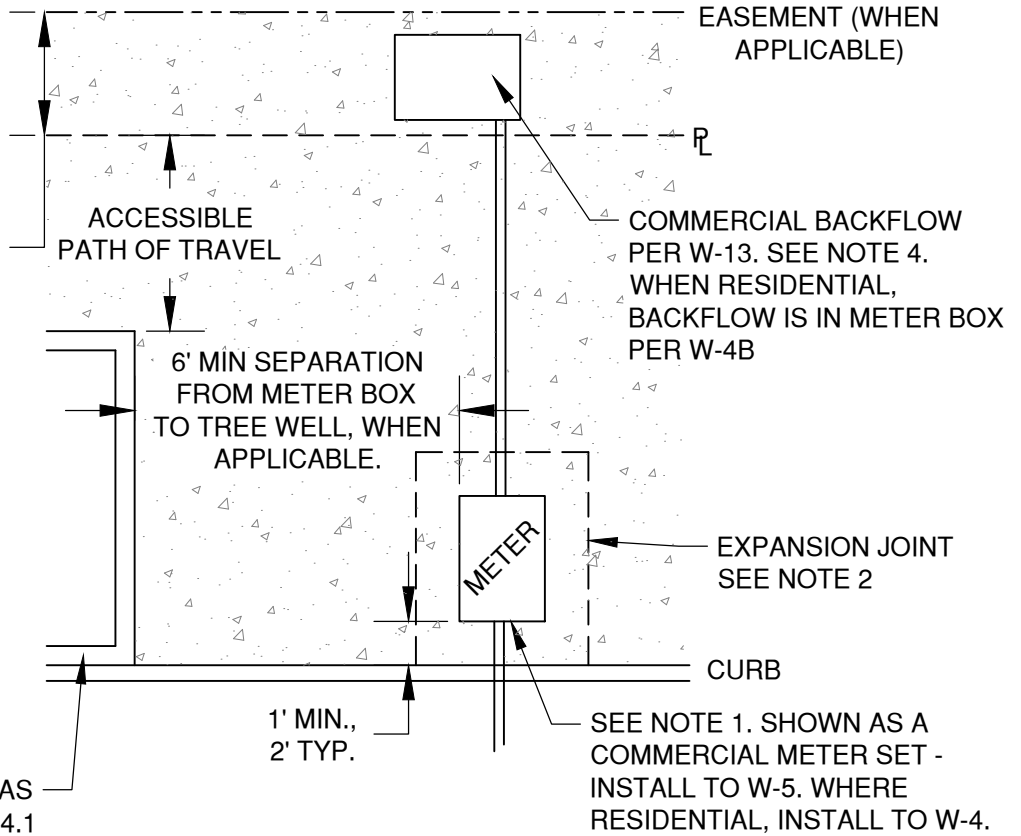
SCALE NTS

DATE 01/31/2022

APPR

STD DWG W-5D

SIDEWALK INSTALLATION WITHIN 5' PUBLIC ACCESS EASEMENT AS REQUIRED BY BEND CENTRAL DISTRICT. MAY NOT BE APPLICABLE FOR ALL PROJECTS.



TREE WELL, MIN 4'X9' AS APPLICABLE. REFER TO 12.2.4.1 OF THE CONSTRUCTION DESIGN STANDARDS

TYPICAL INSTALLATION IN THE BEND CENTRAL DISTRICT OR WHERE WIDENED SIDEWALKS ARE REQUIRED BY DEVELOPMENT CODE. METERS TO BE PERMITTED WITHIN HARDSCAPE ONLY WHEN APPROVED BY THE CITY ENGINEER.

**NOTE:**

1. WATER METER BOXES SHALL BE LOCATED IN LANDSCAPE AREAS WHEN POSSIBLE. IF WATER METER BOX CAN BE LOCATED ON PRIVATE PROPERTY TO REMOVE IT FROM SIDEWALK, A UTILITY EASEMENT SHALL BE GRANTED TO THE CITY TO MAINTAIN THE METER.
2. AN EXPANSION JOINT IN THE SIDEWALK SHALL BE INSTALLED 12-INCH AROUND THE ENTIRE PERIMETER OF THE METER BOX.
3. STATE SPEC BASE ROCK SHALL BE COMPACTED TO 95% IMMEDIATELY BELOW AND FOR A MINIMUM OF 3 FEET AROUND THE METER BOX.
4. BACKFLOW DEVICE SHALL BE INSTALLED ON PRIVATE PROPERTY. WHERE BACKFLOW DEVICES CANNOT BE PLACED WITHIN LANDSCAPE, THE BOX SHALL BE INSTALLED OUTSIDE THE RIGHT OF WAY AND OUTSIDE A PUBLIC UTILITY EASEMENT. INSTALLATION OF BACKFLOW DEVICES WITHIN A BUILDING WILL BE GRANTED ON A CASE BY CASE BASIS BY THE CITY ENGINEER ONLY WHERE IT CAN BE ADEQUATELY SHOWN NOT TO FIT OUTSIDE THE BUILDING (EXAMPLE, THE BACKFLOW DEVICE, AND THEREFORE THE VAULT, IS TOO LARGE TO FIT)
5. SET WATER SERVICES A MINIMUM OF 10' FROM ALL SANITARY, FRANCHISE, STORM, AND ELECTRICAL SERVICES. ALL TREE WELLS SHALL BE A MINIMUM 6 FEET FROM THE METER BOX INSTALLATION.
6. WATER METERS SHALL NOT BE PLACED WITHIN VEHICULAR SURFACES (DRIVEWAYS) WITHOUT CITY ENGINEER APPROVAL.
7. COMMERCIAL WATER METER BOXES TO BE INSTALLED PERPENDICULAR TO THE CURB LINE, SEE STD DWG W-5. RESIDENTIAL WATER METER BOXES TO BE INSTALLED PARALLEL TO THE CURB LINE PER STD DWG W-4

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REV	DATE



**CITY OF BEND**

**CITY OF BEND**

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

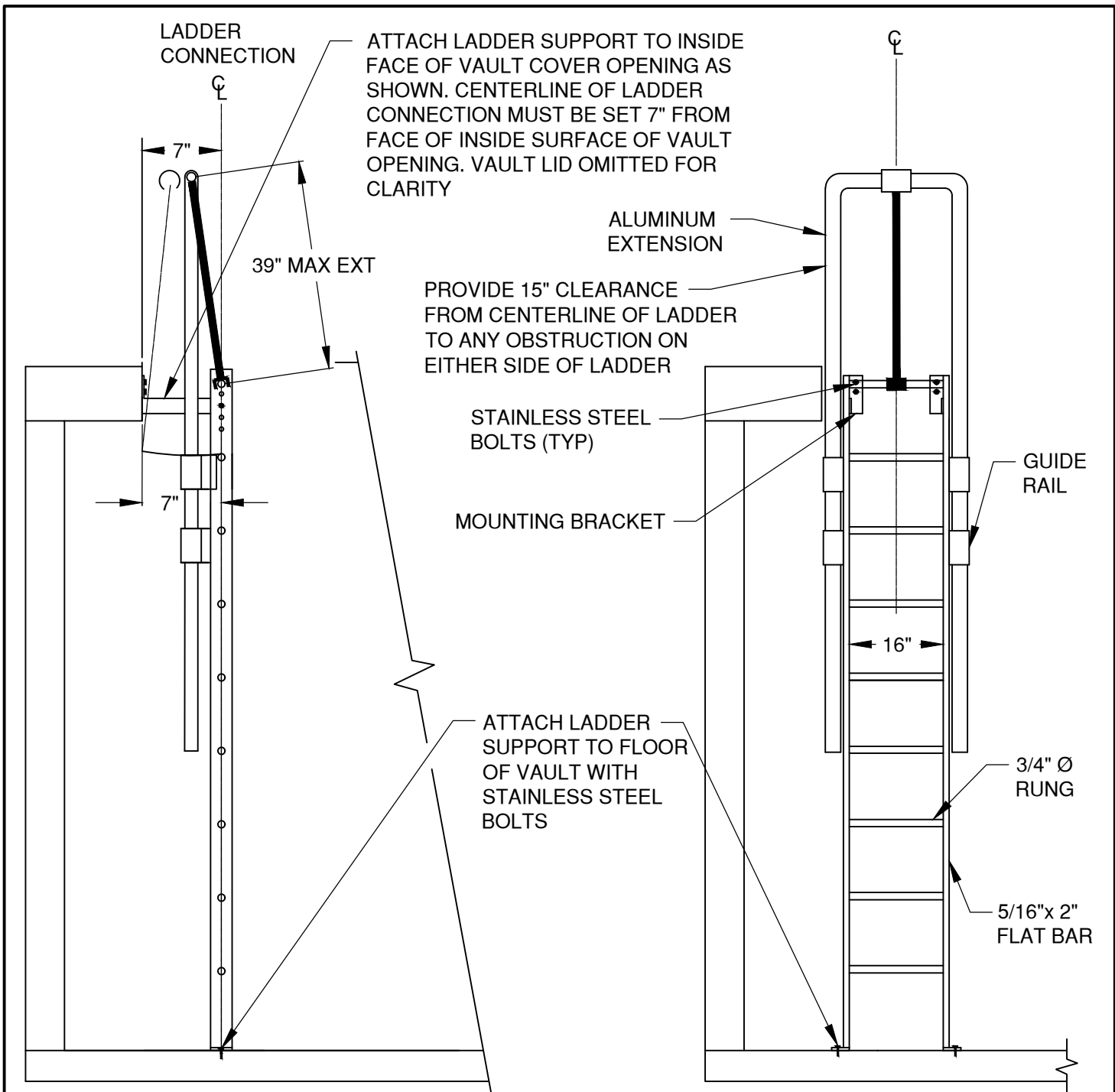
**METER INSTALLATION IN SIDEWALKS**

SCALE NTS

DATE 01/31/2022

APPR

STD DWG W-5E



**SIDE VIEW**

**FRONT VIEW**

**NOTES:**

1. GALVANIZED LADDER W/AN ALUMINUM EXTENSION BY OLDCASTLE (OR APPROVED EQUAL) (PER OAR 437, DIV 2, CODE OF FEDERAL REGULATIONS, TITLE 29, CHAPTER XVII PART 1910.27)
2. 5'-4" GALVANIZED LADDER FROM OLDCASTLE TO BE CUT DOWN TO 4'-7" BY CONTRACTOR FOR USE IN VAULT 675-WA. OLDCASTLE TO SUPPLY 49 1/2" ALUMINUM EXTENSION

DRAWN AJD	
DIV WATER	
REV	DATE



**CITY OF BEND**

**CITY OF BEND**

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

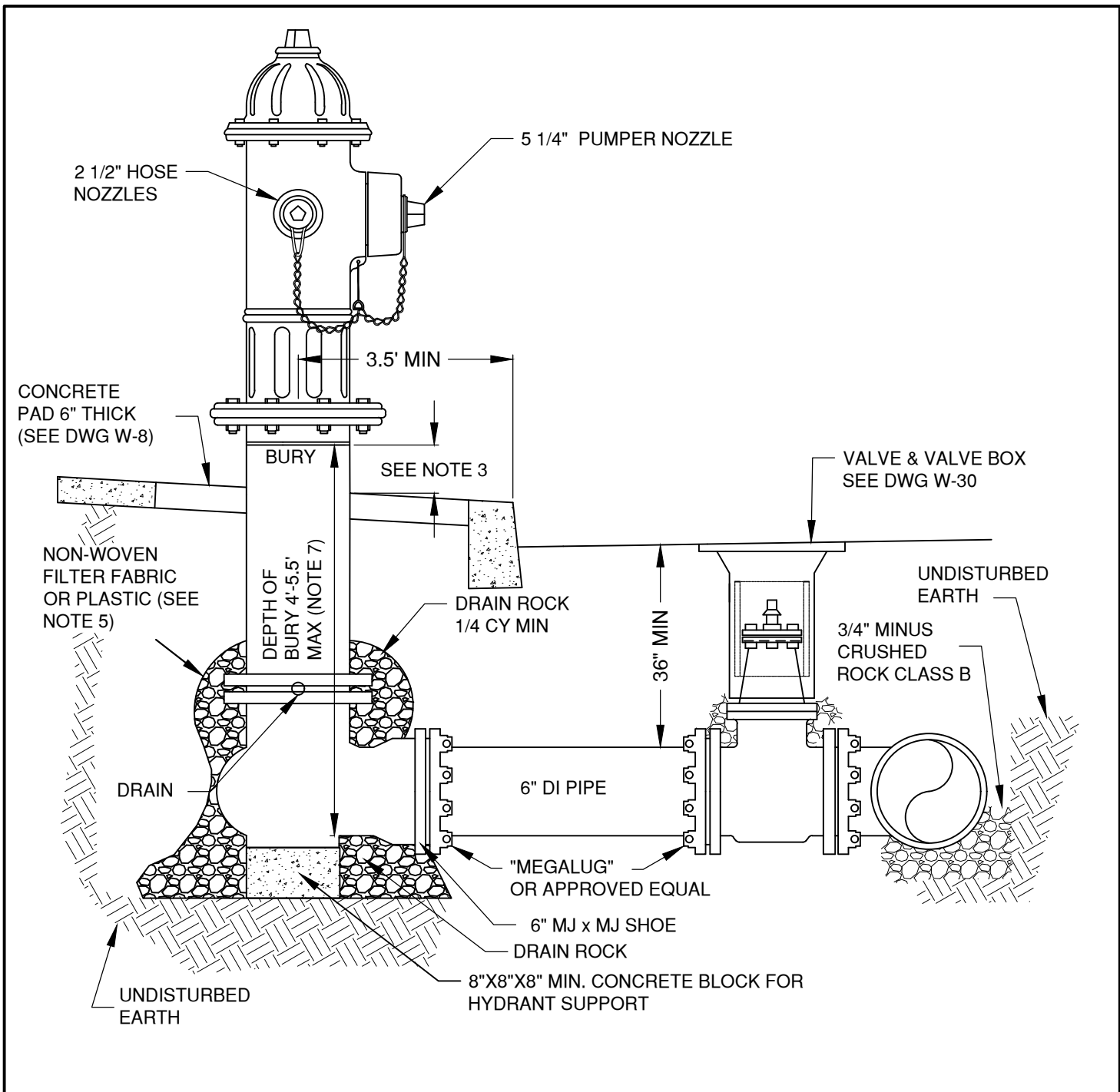
**GALV. LADDER W/ ALUM EXT FOR WATER VAULTS**

SCALE NTS

DATE 01/31/2022

APPR

STD DWG W-6



**NOTES:**

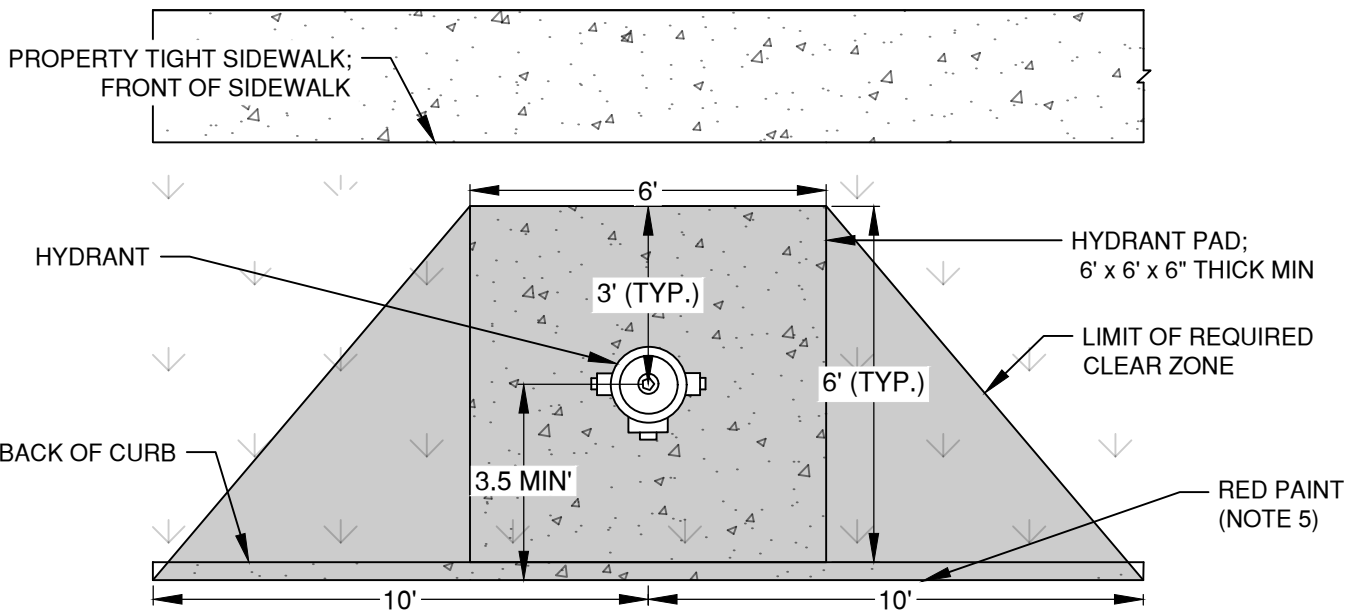
1. ALL PIPES SHALL HAVE RESTRAINED JOINTS.
2. MJ x MJ TEE OR MJxMJxSWIVEL (REQUIRES ENGINEER APPROVAL) WITH 6-INCH VALVE AT THE MAINLINE.
3. FINISH GRADE OF HYDRANT SHALL BE SET AT BURY LINE TO A MAXIMUM OF 3" BELOW BURY LINE FOR NEW INSTALLATION AND MAX OF 6" FOR RETROFITS. NO HYDRANT EXTENSIONS PERMITTED ON NEW INSTALLATIONS.
4. SET HYDRANT PLUMB. COMPACT ALL BACKFILL PER SPECIFICATIONS.
5. NON-WOVEN SEPARATION FILTER FABRIC OR PLASTIC (OSS TABLE 02320-4) INSTALLED BETWEEN UNDISTURBED EARTH AND DRAINROCK PRIOR TO BACKFILL.
6. HYDRANTS SHALL BE MANUFACTURER'S RED. NO OTHER COLOR IS PERMITTED.
7. BURY DEPTH IS MAX 6 FEET. USE 45 DEGREE OR 22.5 DEGREE BENDS TO ADJUST ACCORDINGLY.

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DIV WATER	
REV	DATE

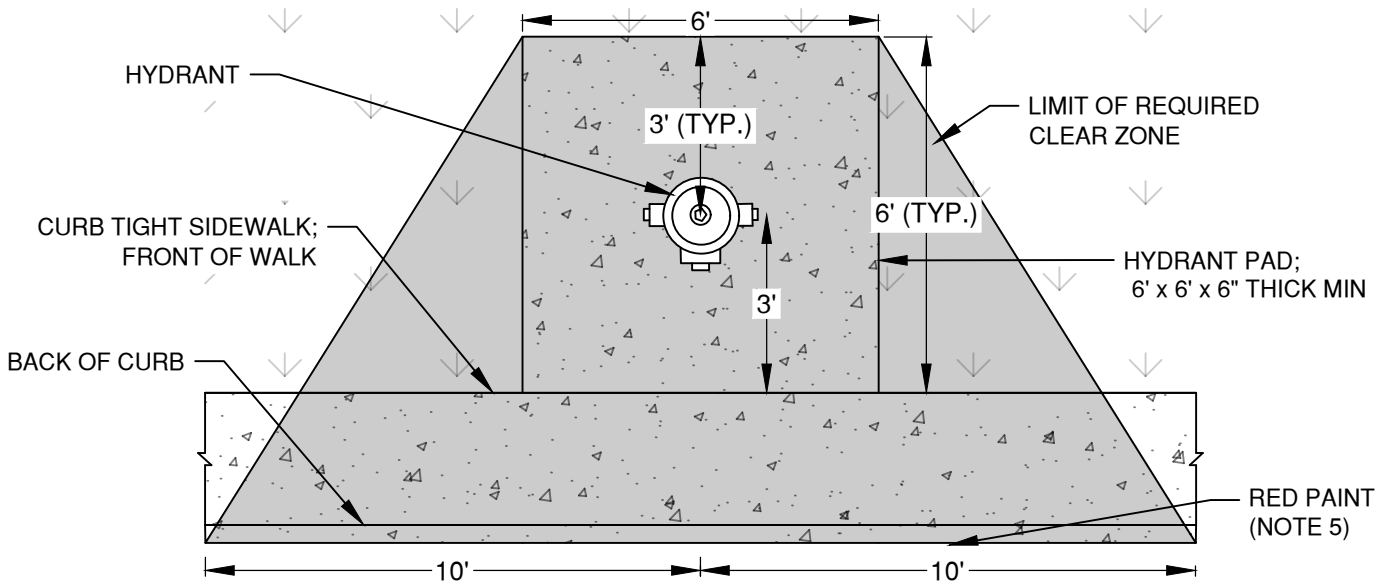


**CITY OF BEND**  
 STANDARD DRAWING  
 710 NW WALL ST., BEND, OREGON 97701  
**TYPICAL HYDRANT**

SCALE NTS
DATE 01/31/2022
APPR
STD DWG W-7



**PROPERTY TIGHT SIDEWALK HYDRANT LOCATION AND CLEAR ZONE  
PLAN VIEW**



**CURB TIGHT SIDEWALK HYDRANT LOCATION AND CLEAR ZONE  
PLAN VIEW**

**NOTES:**

1. THE CLEAR ZONE PROHIBITS PARKING, FENCES, TREES, RETAINING WALLS, OR OTHER STRUCTURES THAT COULD INTERFERE WITH OPERATION OF HYDRANT. GRASS, MULCH, BARKDUST, AND GROUND COVER IS PERMITTED.
2. PROPERTY OWNERS SHOULD BE AWARE THAT GROUND COVER COULD BE DAMAGED WHEN THE HYDRANT IS USED OR WHEN HYDRANT MAINTENANCE IS PERFORMED.
3. CONCRETE PADS ARE TO BE A MINIMUM OF 6" THICK AND BE POURED AND PLACED ON 2" MIN. COMPACTED BASE ROCK PER SECTION OSS 00405.00
4. THERE SHALL BE A MINIMUM 4 FOOT CLEAR TRAVEL WIDTH ON SIDEWALKS ADJACENT TO HYDRANTS.
5. THE CURB SHALL BE PAINTED RED FOR A TOTAL OF 20 FEET, CENTERED ON THE HYDRANT.

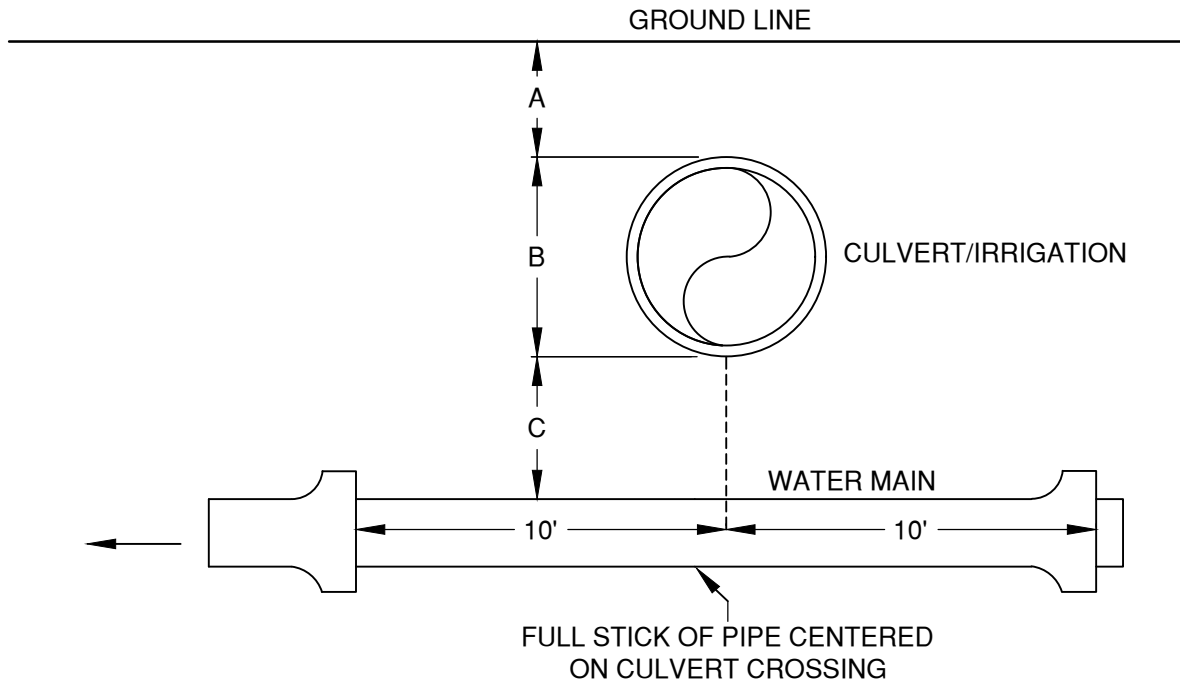
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**CITY OF BEND**  
STANDARD DRAWING  
710 NW WALL ST., BEND, OREGON 97701

**HYDRANT LOCATION AND CLEAR ZONE**

SCALE NTS
DATE 01/31/2022
APPR
STD DWG W-8



A

B

C

COVER FROM CULVERT TO FINISH GRADE	CULVERT SIZE	SEPARATION CULVERT TO MAIN
12" OR LESS	6" THRU 12"	NOT LESS THAN 18"
12" OR MORE	6" THRU 12"	NOT LESS THAN 12"
12" OR LESS	14" THRU 24"	NOT LESS THAN 30"
12" OR MORE	14" THRU 24"	NOT LESS THAN 24"
	GREATER THAN 24"	NOT LESS THAN 36"

DRAWN AJD  
DIV WATER  
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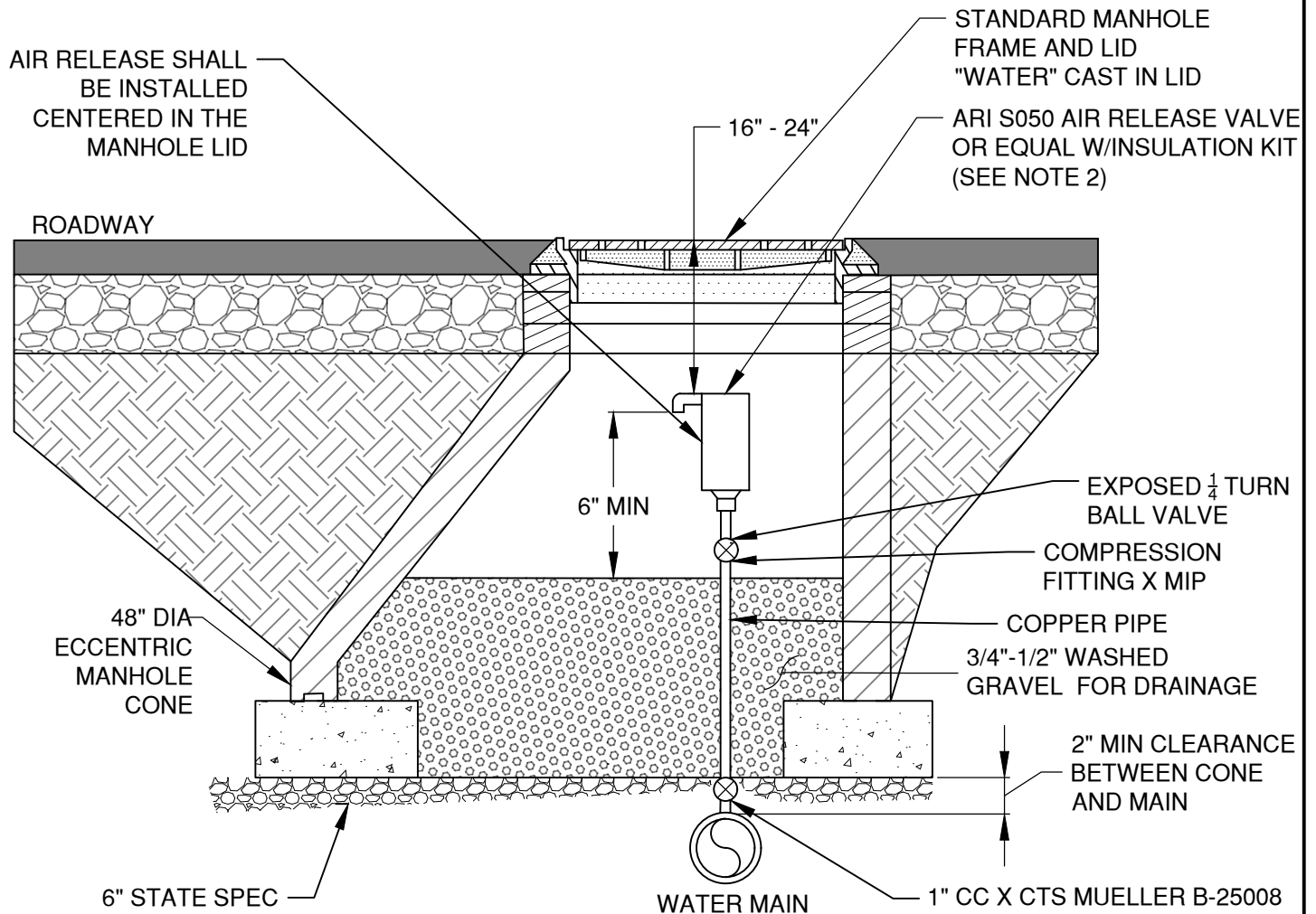
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DATE 01/31/2022

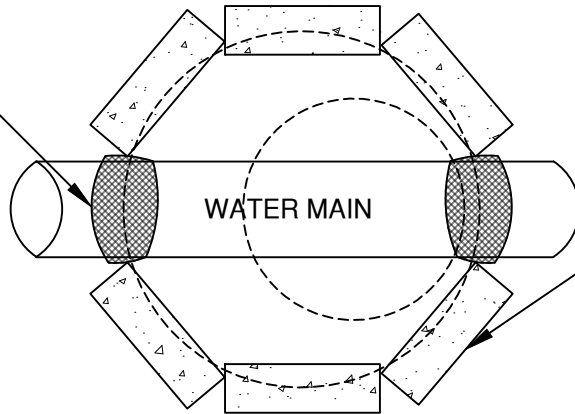
APPR

STD DWG W-9

SEPARATION OF WATER LINE TO IRRIGATION CULVERTS



**PROFILE VIEW**



**PLAN VIEW**

THE CONE SHALL BE VERTICALLY SEPARATED FROM THE WATER MAIN BY A MINIMUM OF 2 INCHES; NYLON POLYMER SAND BAGS TO BE PLACED BETWEEN THE CONE AND THE WATER MAIN FOR PROTECTION OF WATER MAIN

1" CC X CTS MUELLER B-25008 OR APPROVED EQUAL FOR 1" AIR RELEASE; OR 2" TAPPING SADDLE, CTS X MIP CORP STOP MUELLER B-25028 OR APPROVED EQUAL FOR 2" AIR RELEASE (SEE NOTE 2)

**GENERAL NOTES:**

1. AIR RELEASE OR COMBINATION VALVES SHALL BE INSTALL AT ALL HIGH POINTS. WHERE THE HIGH POINT IS AT THE TOP OF A LONG ASCENT (1,250 FEET+) A COMBINATION AIR/VACUUM VALVE SHALL BE INSTALLED.
2. 1" AIR RELEASE VALVE TO BE USED ON WATER MAINS LESS THAN 12" IN DIAMETER. 2" AIR RELEASE VALVE TO BE USED ON WATER MAINS GREATER THAN OR EQUAL TO 12" IN DIAMETER.

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DIV	WATER
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710 NW WALL ST., BEND, OREGON 97701

SCALE NTS

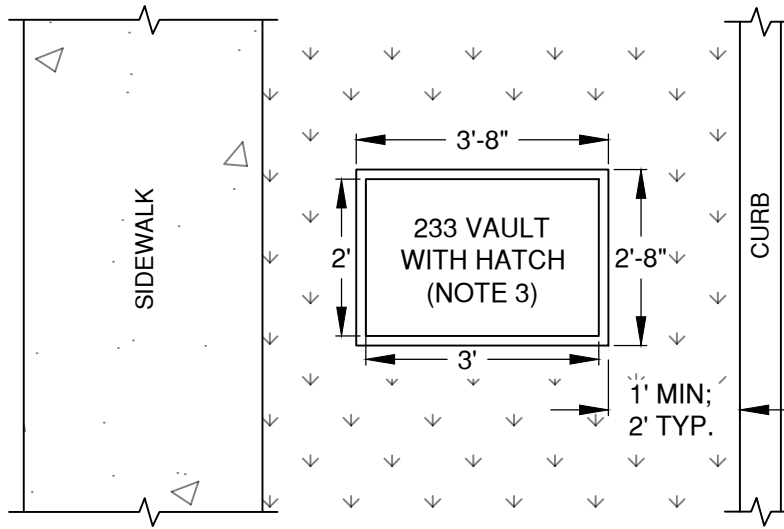
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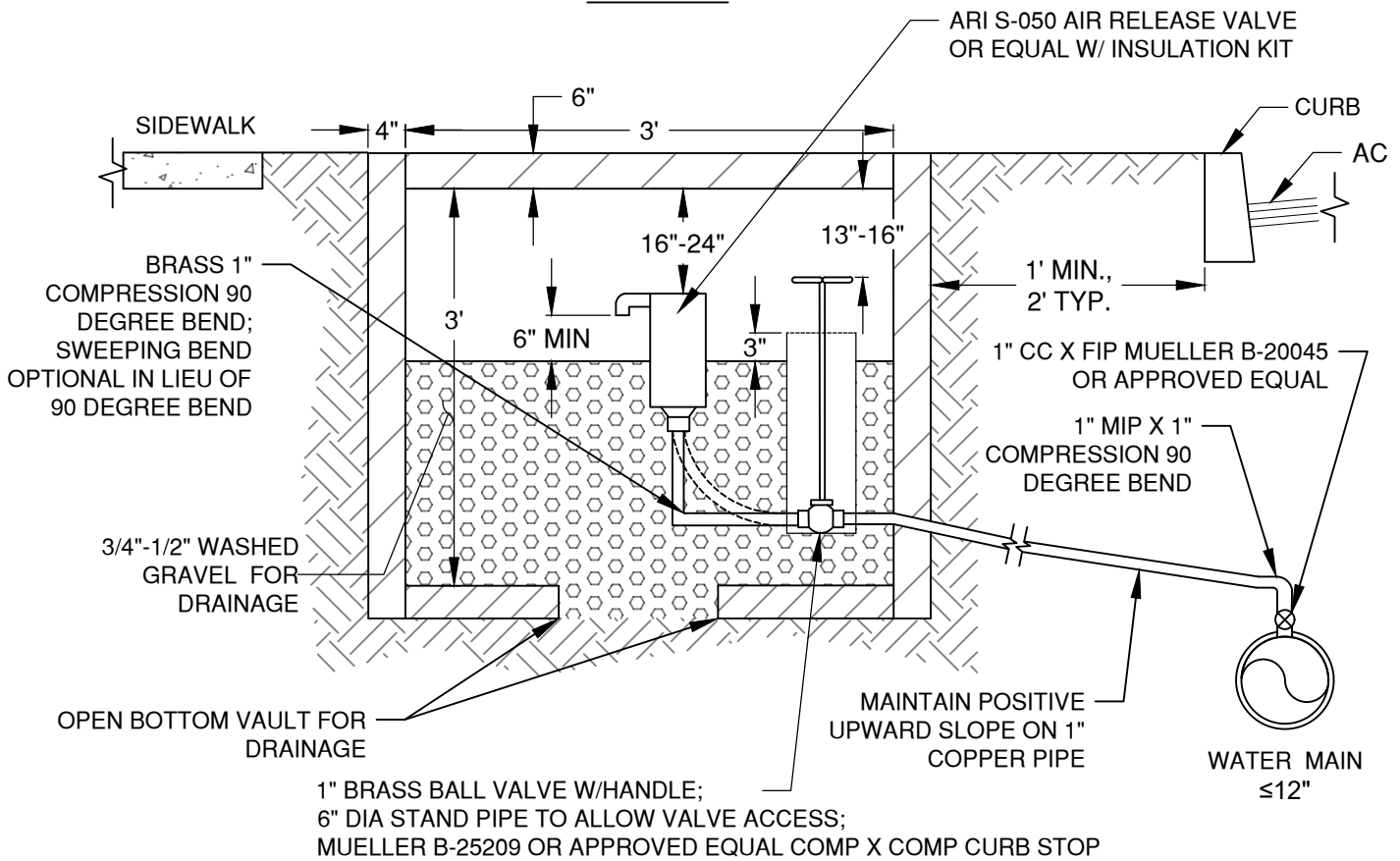
STD DWG W-10

**1" & 2" STANDARD AIR RELEASE VALVE - TRAFFIC AREA**





**AIR RELEASE VALVE LOCATION  
PLAN VIEW**



**GENERAL NOTES:**

1. AIR RELEASE OR COMBINATION VALVES SHALL BE INSTALL AT ALL HIGH POINTS. WHERE THE HIGH POINT IS AT THE TOP OF A LONG ASCENT (1,250 FEET+) A COMBINATION AIR/VACUUM VALVE SHALL BE INSTALLED.
2. IF 1" AIR RELEASE VALVE IS INSTALLED IN TRAFFIC AREA, INSTALL PER STD DWG W-10.
3. VAULT SHALL BE PRECAST VAULT WITH 2'X3' HATCH AND OPEN BOTTOM, OR APPROVED EQUAL.

DRAWN	AJD
DIV	WATER
REV	DATE



**CITY OF BEND**

**CITY OF BEND  
STANDARD DRAWING**

710 NW WALL ST., BEND, OREGON 97701

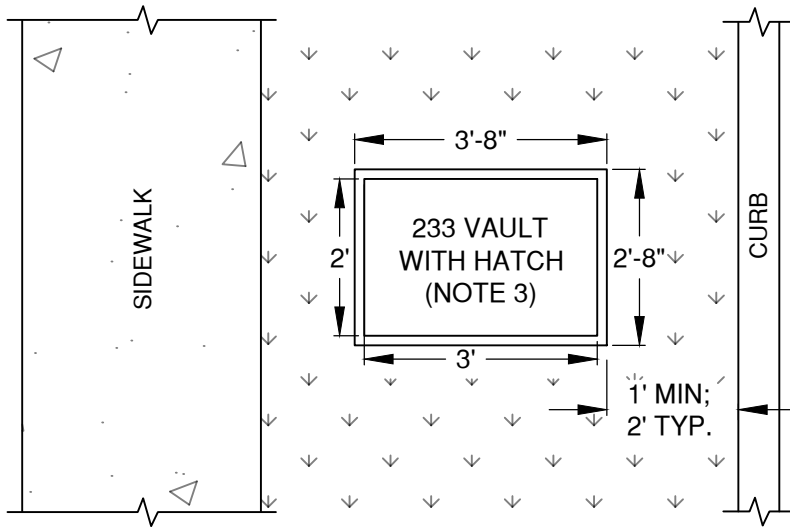
**1" STANDARD AIR RELEASE VALVE**

SCALE NTS

DATE 01/31/2022

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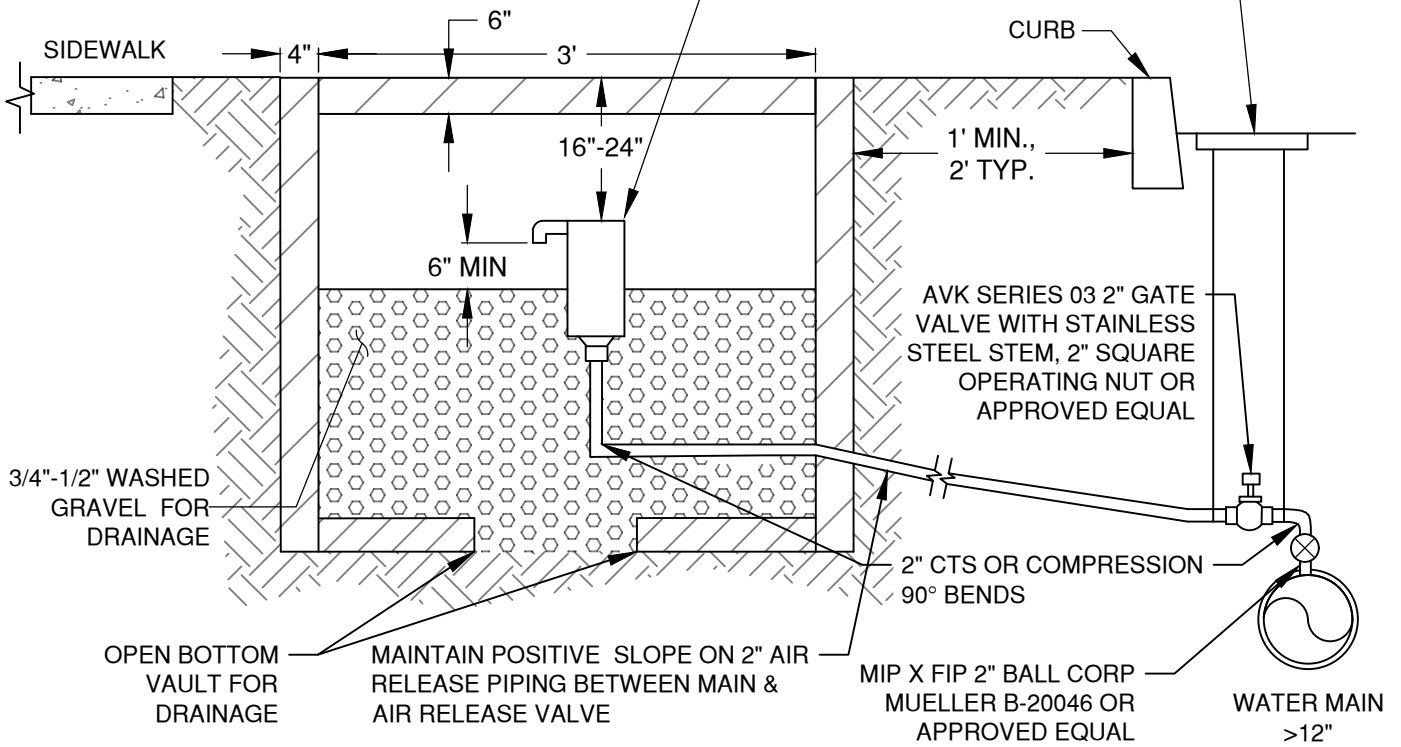
STD DWG W-10A



**AIR RELEASE VALVE LOCATION  
PLAN VIEW**

STANDARD VALVE BOX  
PER STD DWG W-30

ARI S050 AIR RELEASE VALVE OR  
EQUAL W/INSULATION KIT



**GENERAL NOTES:**

1. AIR RELEASE OR COMBINATION VALVES SHALL BE INSTALL AT ALL HIGH POINTS. WHERE THE HIGH POINT IS AT THE TOP OF A LONG ASCENT (1,250 FEET+) A COMBINATION AIR/VACUUM VALVE SHALL BE INSTALLED.
2. SEE STD DWG W-10 FOR 2" AIR RELEASE VALVES LOCATED IN TRAFFIC AREAS.
3. VAULT SHALL BE ADVANCED PRECAST PRODUCT 233 VAULT WITH 2'X3' HATCH AND OPEN BOTTOM, OR APPROVED EQUAL.

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DIV	WATER
REV	DATE



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710 NW WALL ST., BEND, OREGON 97701

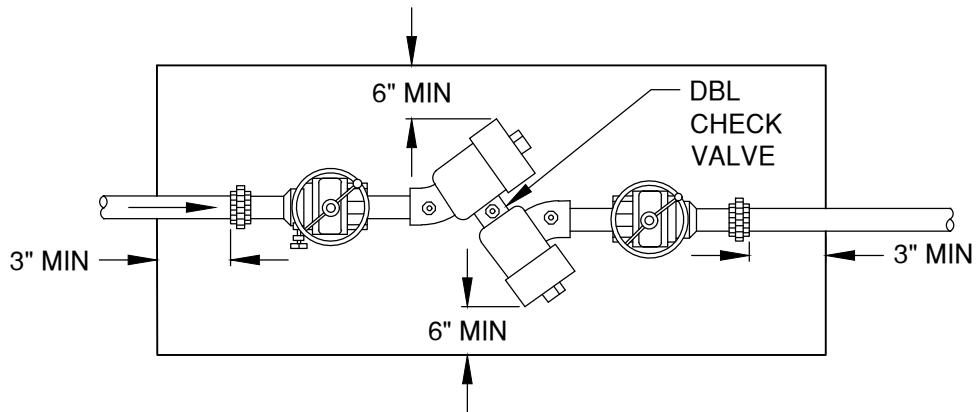
**2" STANDARD AIR RELEASE VALVE**

SCALE NTS

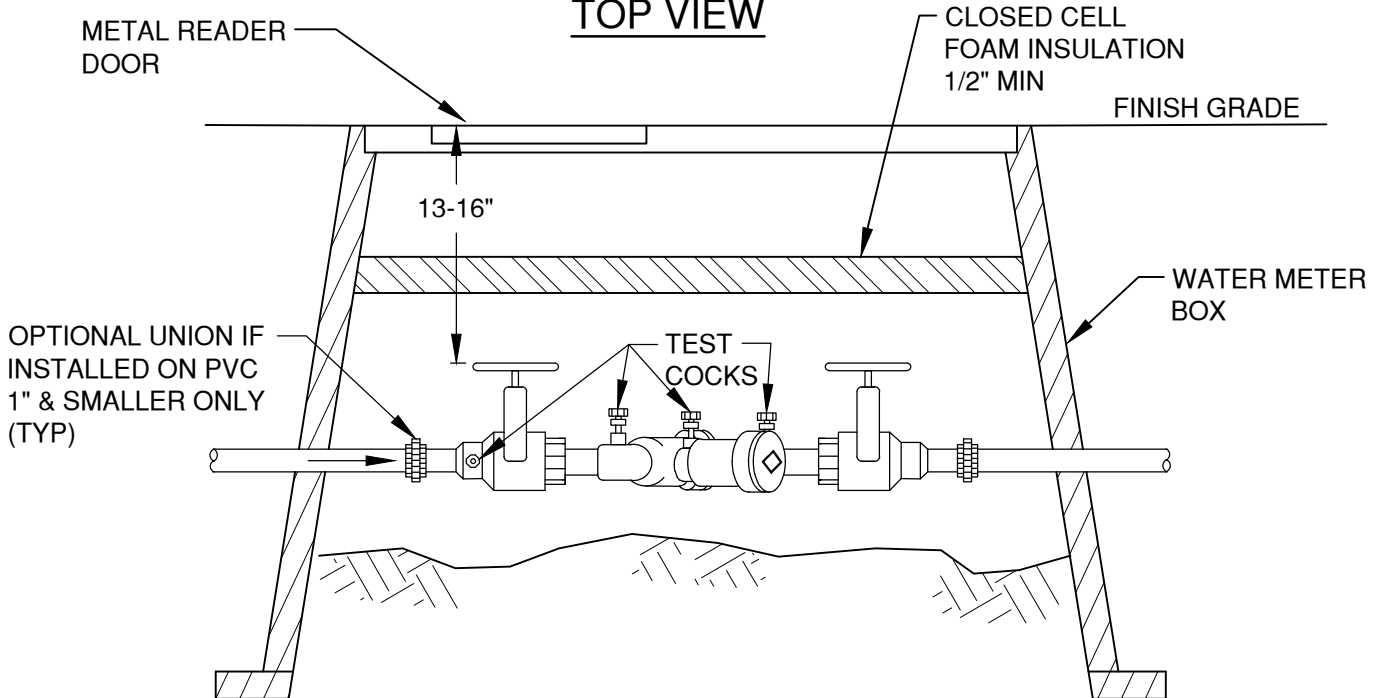
DATE 01/31/2022

APPR

STD DWG W-10B



**TOP VIEW**



**SIDE VIEW**

**NOTES:**

1. DOUBLE CHECK VALVE ASSEMBLIES (DCVAs) MAY BE INSTALLED VERTICAL AS WELL AS HORIZONTAL PROVIDED THAT THE ASSEMBLY IS APPROVED FOR VERTICAL INSTALLATIONS
2. DCVAs MAY BE INSTALLED BELOW GRADE IN A VAULT PROVIDED WATER TIGHT, THREADED PLUGS ARE INSTALLED IN THE TEST COCKS, BUT THE ASSEMBLY SHALL NOT BE SUBJECT TO CONTINUOUS IMMERSION
3. BLOWOUT PORTS, WHEN REQUIRED MUST BE INSTALLED DOWNSTREAM OF LAST ASSEMBLY SHUTOFF

DRAWN AJD  
 DIV WATER  
 REV DATE



**CITY OF BEND**

**CITY OF BEND**

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

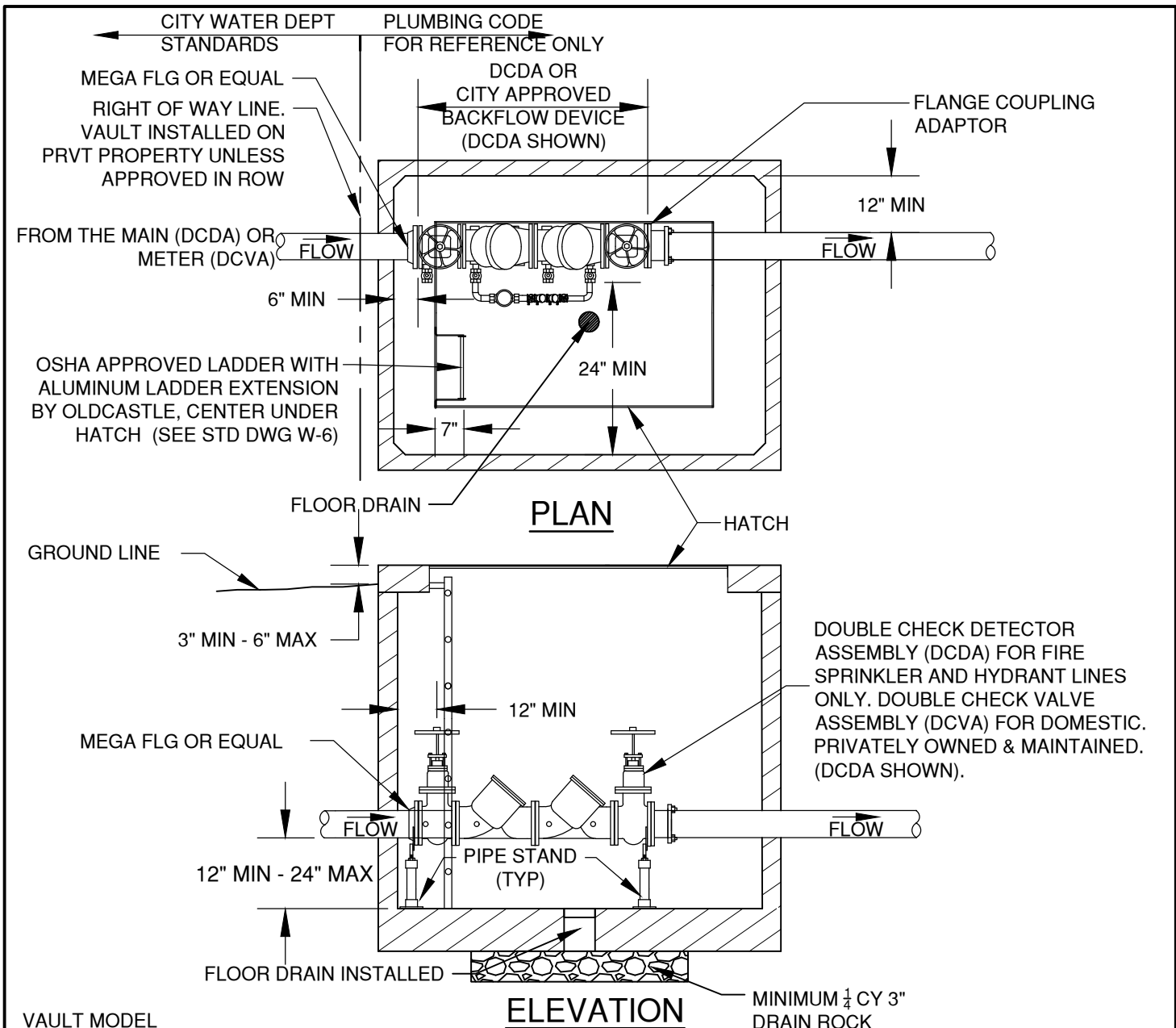
**TYPICAL DCVA INSTALLATIONS 2" AND SMALLER**

SCALE NTS

DATE 01/31/2022

APPR

STD DWG W-13



**VAULT MODEL**

PIPE SIZE	UTILITY VAULT OR EQUAL		BILCO DOOR OR EQUAL
	W/ FDC*	W/O FDC	
3		660-WA	J-5AL
4	676-WA	577-WA	J-5AL
6	687-WA	676-WA	J-5AL
8	5106-LA	687-WA	JD-3AL
10	5106-LA	5106-LA	JD-3AL

\* FOR FIRE SPRINKLER VAULTS, REFER TO W-13B. FIRE SPRINKLER VAULTS INSTALLED IN RIGHT OF WAY OR UTILITY EASEMENT ONLY WHEN APPROVED BY CITY ENGINEER.

**NOTES:**

- ENGINEER TO PROVIDE RESTRAIN DETAIL FOR ALL PIPE ENTERING & EXITING VAULT
- CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT PRIOR TO BACKFILLING
- CONDUIT BROUGHT TO VAULT FOR PUMP POWER AND DETECTOR WIRING.
- ENGINEERED DESIGN TO BE PROVIDED WITH PERMIT.
- VAULT AND LID TO BE TRAFFIC RATED
- ALL FIRE LINES SHALL HAVE THE VAULT & DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) INSTALLED CONCURRENTLY FOR TESTING & DISINFECTION TO THE CITY MAIN.
- PIPE SHALL MEET CITY ROW SPECIFICATIONS FROM MAIN TO DCDA

DRAWN AJD  
DIV WATER  
REV DATE



**CITY OF BEND**

**CITY OF BEND**

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

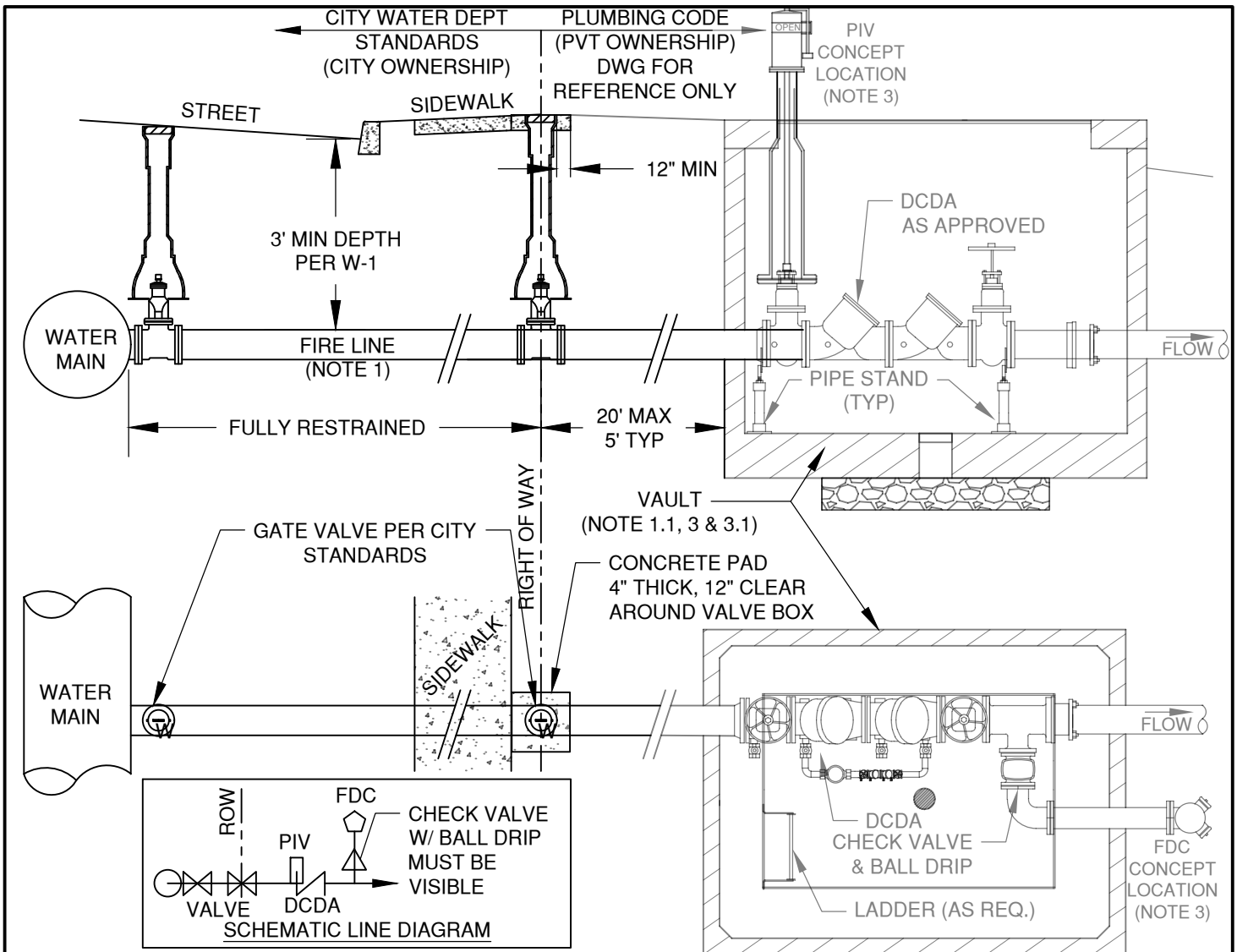
**2" & LARGER DOUBLE CHECK VALVE ASSEMBLY**

SCALE NTS

DATE 01/31/2022

APPR

STD DWG W-13A



**NOTES:**

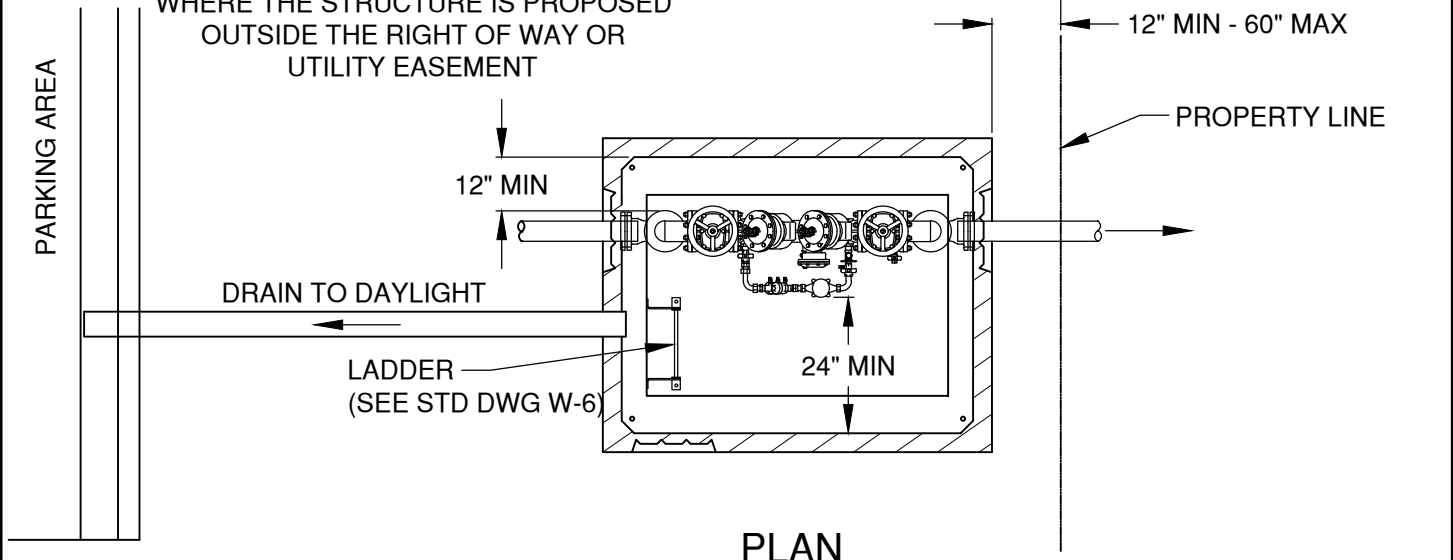
1. FIRE VAULT AND DCDA IS SHOWN FOR REFERENCE ONLY. VAULT AND PLUMBING BEYOND THE GATE VALVE SHALL BE INSTALLED PER PLUMBING CODE AND INSPECTED BY THE BUILDING DEPARTMENT.
  - 1.1. WHERE FIRE VAULT IS APPROVED BY CITY ENGINEER TO BE WITHIN THE ROW OR PUBLIC EASEMENT, VAULT SIZES ON STD DWG W-13A SHALL APPLY AND "FOR REFERENCE NOTES" ON THIS SHEET WOULD APPLY.
2. FIRE LINE TO BE 4" MIN DUCTILE IRON WATER MAIN PER CITY OF BEND SPECIFICATIONS. FIRE LINE TO BE SIZED BY ENGINEER UNDER A RIGHT OF WAY PERMIT.
3. VAULT TO BE SIZED BY ENGINEER IN CONFORMANCE TO BUILDING/FIRE/PLUMBING CODE, MEETING THE DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) MANUFACTURER'S INSTALLATION SPECIFICATIONS. DESIGN SHALL ACCOUNT FOR ANY FREEZE PROTECTION REQUIRED TO MEET FIRE CODE.
  - 3.1. WHERE BUILDING IS WITHIN 20 FEET OF THE RIGHT OF WAY LINE, AND AS APPROVED BY THE BUILDING OFFICIAL, THE DCDA CAN BE WITHIN THE BUILDINGS MECHANICAL ROOM WITH THE DCDA LOCATED AT THE BUILDING PENETRATION AND THE FDC VISIBLE FROM ROW. ACCESS TO THE MECHANICAL ROOM TO BE PROVIDED BY AN EXTERIOR DOOR WITH KNOX BOX.
  - 3.2. VAULTS ARE TO BE PLACED OUT OF HARD SURFACES (SIDEWALKS, DRIVEWAYS/ROADWAYS, ECT.)
4. POST INDICATOR VALVE (PIV) AND FIRE DEPARTMENT CONNECTION (FDC) TO BE LOCATED IN CLEAR VIEW OF THE FRONTAGE STREET, WITH THE FDC LOCATED WITHIN AN ALLOWABLE DISTANCE FROM A HYDRANT. PIV AND FDC MAY BE MOUNTED ON THE BUILDING IN CONFORMANCE WITH THE FIRE CODE AND AS APPROVED. PIV AND FDC CAN BE MOUNTED OUTSIDE THE VAULT OR THROUGH THE VAULT LID PROVIDED THEY DON'T INTERFERE WITH VAULT ACCESS AND THE PENETRATIONS ARE GROUTED AND DON'T NEGATE THE STRUCTURAL INTEGRITY OF THE VAULT. PIV NOT TO BE USED IN-LIEU OF ISOLATION GATE VALVE AT PROPERTY LINE.
5. ALL ELECTRICAL TO VAULT AND PIV TO BE INSTALLED PER BUILDING AND FIRE CODE AS REQUIRED.
6. PIPE SHALL MEET CITY ROW SPECIFICATIONS FROM MAIN TO DCDA

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DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	<b>CITY OF BEND</b>	<b>FIRE SPRINKLER LINE</b>	STD DWG W-13B

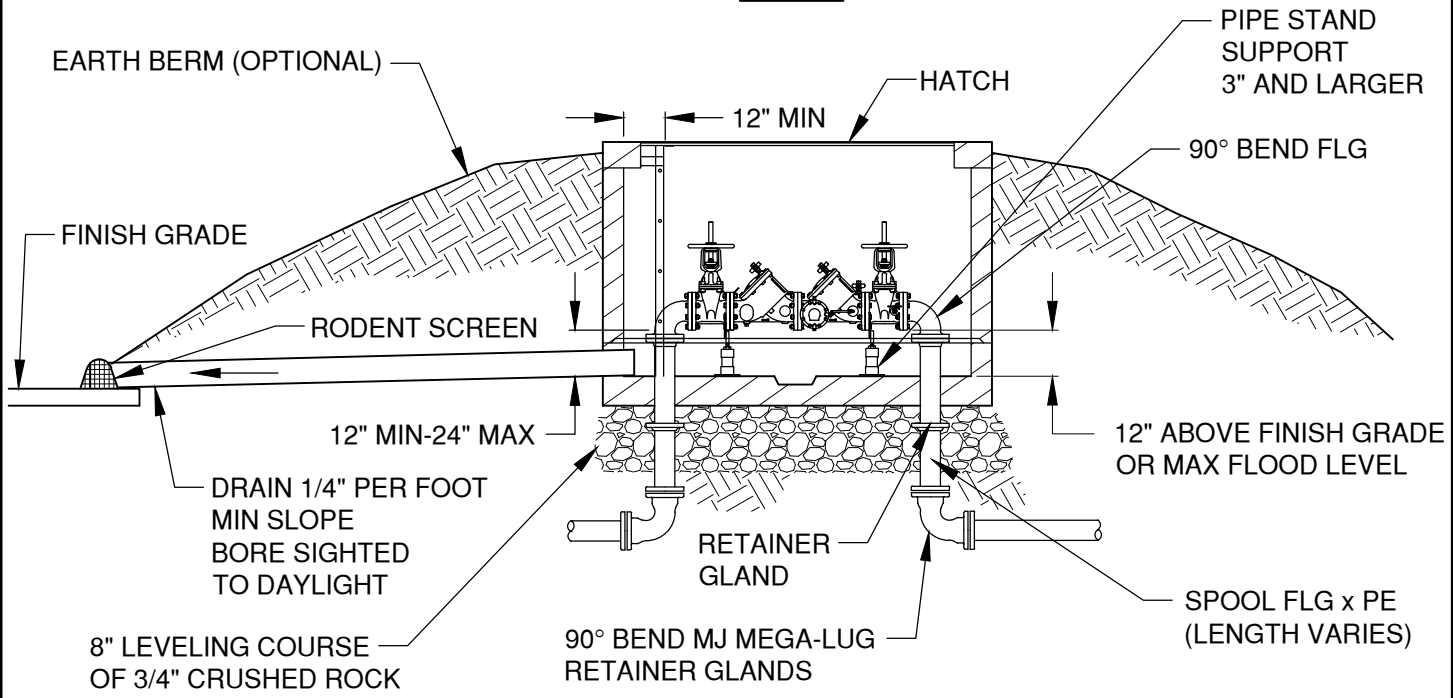
# DRAWING IS FOR REFERENCE ONLY

WHERE THE STRUCTURE IS PROPOSED  
OUTSIDE THE RIGHT OF WAY OR  
UTILITY EASEMENT

INSTALL TO PLUMBING CODE      INSTALL TO CITY STANDARDS



**PLAN**



**PROFILE**

- NOTES:
1. THIS DRAWING IS FOR REFERENCE ONLY. INSTALL PER PLUMBING CODE AND BUILDING DEPARTMENT REQUIREMENTS.
  2. ENGINEER TO PROVIDE RESTRAINT DETAIL FOR ALL PIPE ENTERING & EXITING VAULT
  3. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT PRIOR TO BACKFILLING
  4. HIGH OR LOW HAZARD CONNECTIONS SHALL BE IDENTIFIED AND VERIFIED WITH CITY CROSS CONNECTION SPECIALIST
  5. PIPE SHALL MEET CITY ROW SPECIFICATIONS FROM MAIN TO DCDA

DRAWN	AJD
DIV	WATER
REV	DATE



**CITY OF BEND**  
STANDARD DRAWING  
710 NW WALL ST., BEND, OREGON 97701

**2 1/2"-10" REDUCED PRESSURE BACKFLOW ASSEMBLY**

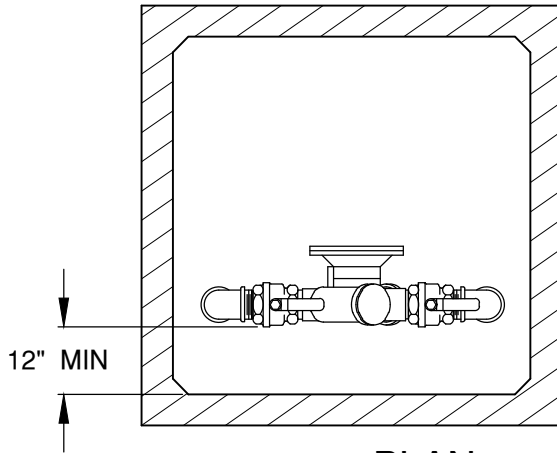
SCALE	NTS
DATE	01/31/2022
APPR	
STD DWG	W-15

# DRAWING IS FOR REFERENCE ONLY

WHERE THE STRUCTURE IS PROPOSED  
OUTSIDE THE RIGHT OF WAY OR  
UTILITY EASEMENT

## VAULT SPECIFICATIONS

WATER LINE DIAMETER	MODEL
1"	OLDCASTLE 3030-LA (OR EQUAL)
1-1/2" - 2"	OLDCASTLE 3642-PUT (OR EQUAL)



**PLAN**

OREGON STATE APPROVED  
PRESSURE BACKFLOW  
PREVENTER

HATCH

SLOPE EARTH AWAY FROM  
VAULT IN BERM AREA

12" MIN ABOVE  
FINISH GRADE

UNION (TYP)

RODENT  
SCREEN

FINISH GRADE

DRAIN TO DAYLIGHT

CONCRETE PAD  
ON 6" OF BASE ROCK

**ELEVATION**

**NOTES:**

1. THIS DRAWING IS FOR REFERENCE ONLY. INSTALL PER PLUMBING CODE AND BUILDING DEPARTMENT REQUIREMENTS.
2. REDUCED PRESSURE BACKFLOW ASSEMBLY TO BE LOCATED DIRECTLY DOWN STREAM OF WATER METER
3. BRASS, STAINLESS, OR PLASTIC PLUGS TO BE INSTALLED IN TEST COCKS IF BELOW GROUND INSTALLATION
4. HIGH OR LOW HAZARD CONNECTIONS SHALL BE IDENTIFIED AND VERIFIED WITH CITY CROSS CONNECTION SPECIALIST

DRAWN	AJD
DIV	WATER
REV	DATE



**CITY OF BEND**

**CITY OF BEND**

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

**1"-2" REDUCED PRESSURE BACKFLOW ASSEMBLY**

SCALE NTS

DATE 01/31/2022

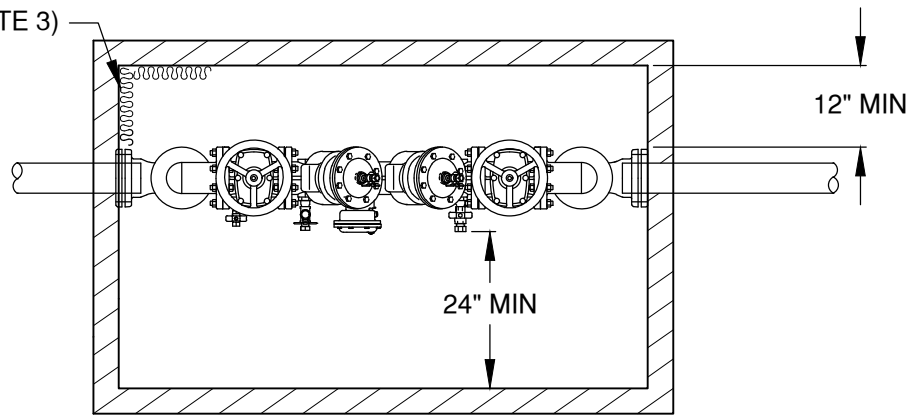
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STD DWG W-15A

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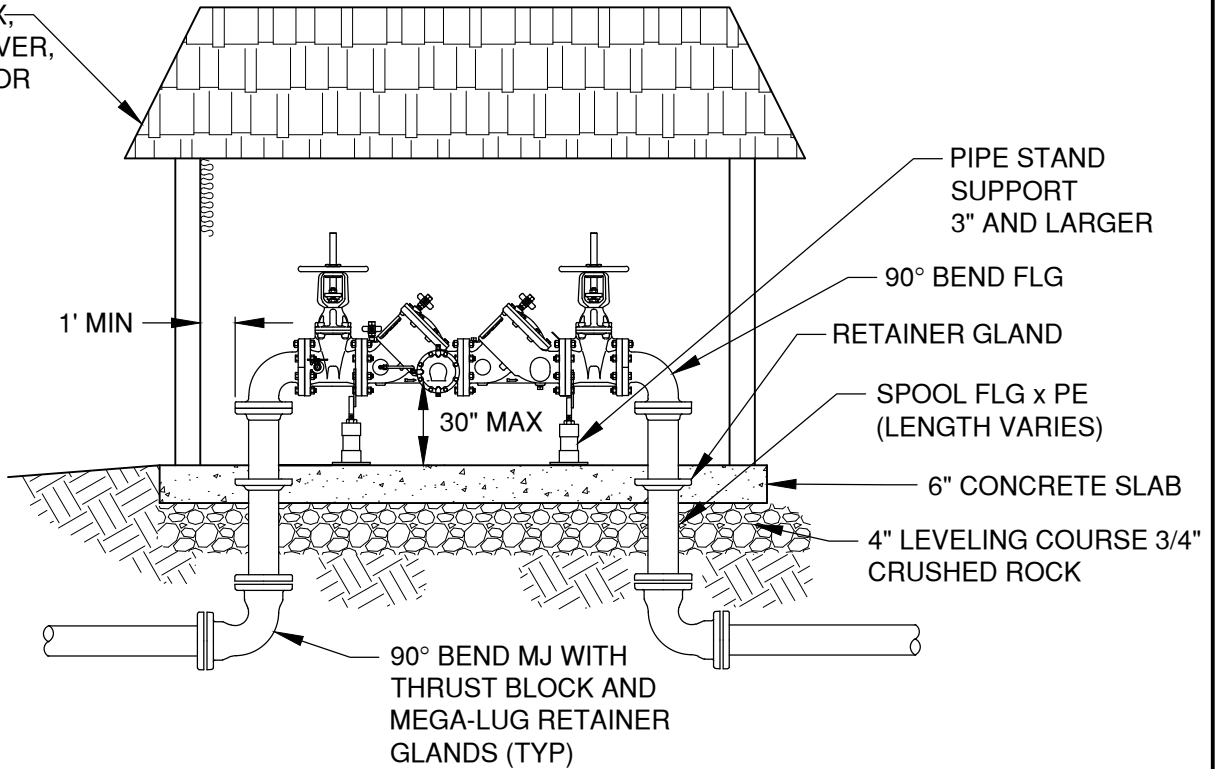
WHERE THE STRUCTURE IS PROPOSED  
OUTSIDE THE RIGHT OF WAY OR  
UTILITY EASEMENT

(SEE NOTE 3)



**PLAN**

1060 ASSE  
CLASS 1;  
WATTS BOX,  
SAFE-T-COVER,  
HOT BOX, OR  
EQUAL



**PROFILE**

**NOTES:**

1. THIS DRAWING IS FOR REFERENCE ONLY. INSTALL PER PLUMBING CODE AND BUILDING DEPARTMENT REQUIREMENTS OR AS BY MANUFACTURER'S REQUIREMENTS.
2. REDUCED PRESSURE BACKFLOW ASSEMBLY SHALL BE INSTALLED HORIZONTALLY UNLESS APPROVED FOR OTHER ORIENTATION
3. ALL CLEARANCES APPLY TO OUTSIDE, IN-BUILDING, AND VAULT INSTALLATIONS
4. STRUCTURE TO BE INSULATED AND HAVE A HEAT SOURCE TO KEEP ENCLOSURE AT 40°F (NFPA 13-4-5.4.1.1)
5. ENCLOSURE SHALL INCLUDE A BORE SIGHTED DRAIN TO DAYLIGHT CAPABLE OF DRAINING A FULL RELIEF VALVE DISCHARGE. MAKE/MODEL/SIZE WILL DICTATE THE SIZE OF THE ENCLOSURE.
6. ALL ASSEMBLIES 2 1/2" AND LARGER SHALL BE FLANGED
7. HIGH OR LOW HAZARD CONNECTIONS SHALL BE IDENTIFIED AND VERIFIED WITH CITY CROSS CONNECTION SPECIALIST

DRAWN	AJD
DIV	WATER
REV	DATE



**CITY OF BEND**

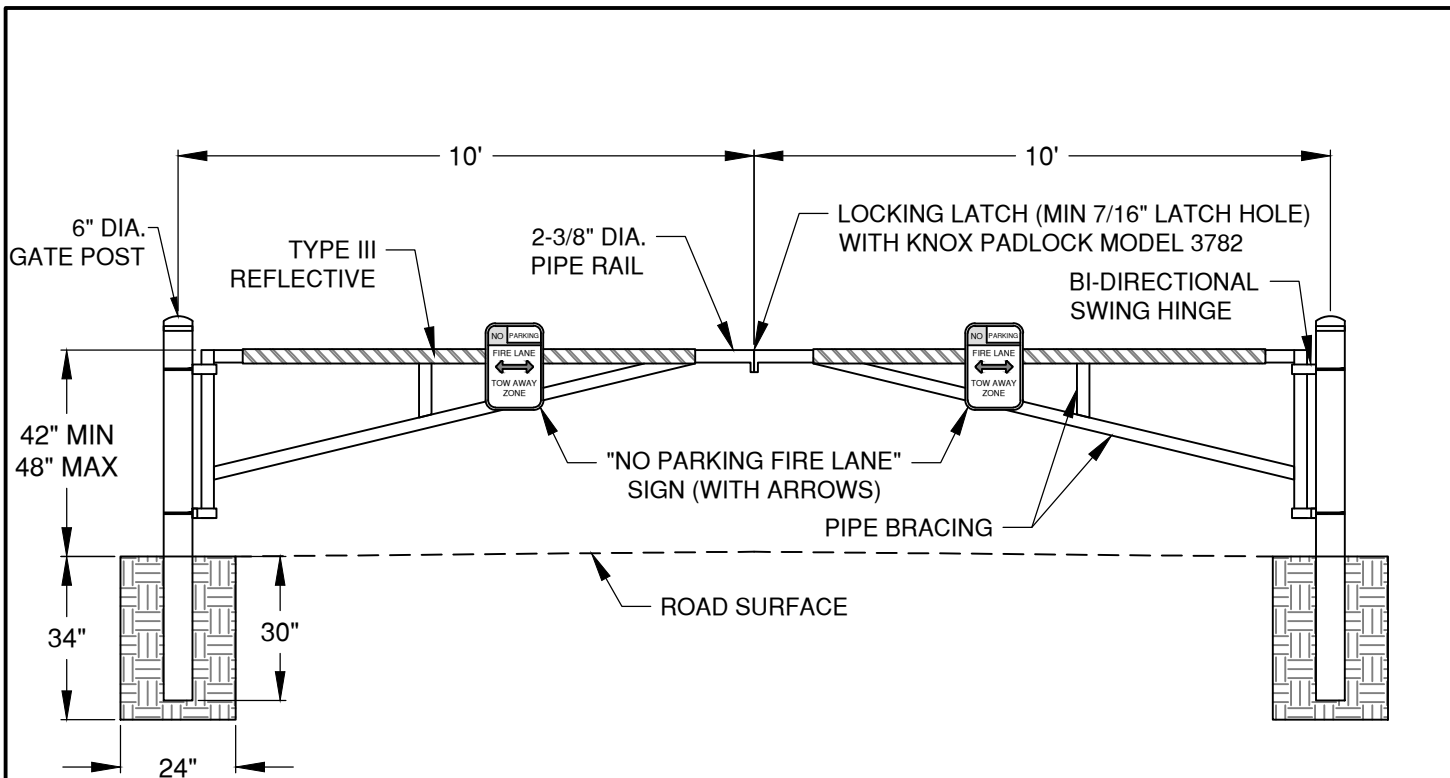
**CITY OF BEND**  
STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

**2 1/2" + REDUCED PRESSURE BACKFLOW ASSEMBLY**

SCALE	NTS
DATE	01/31/2022
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STD DWG	W-15B

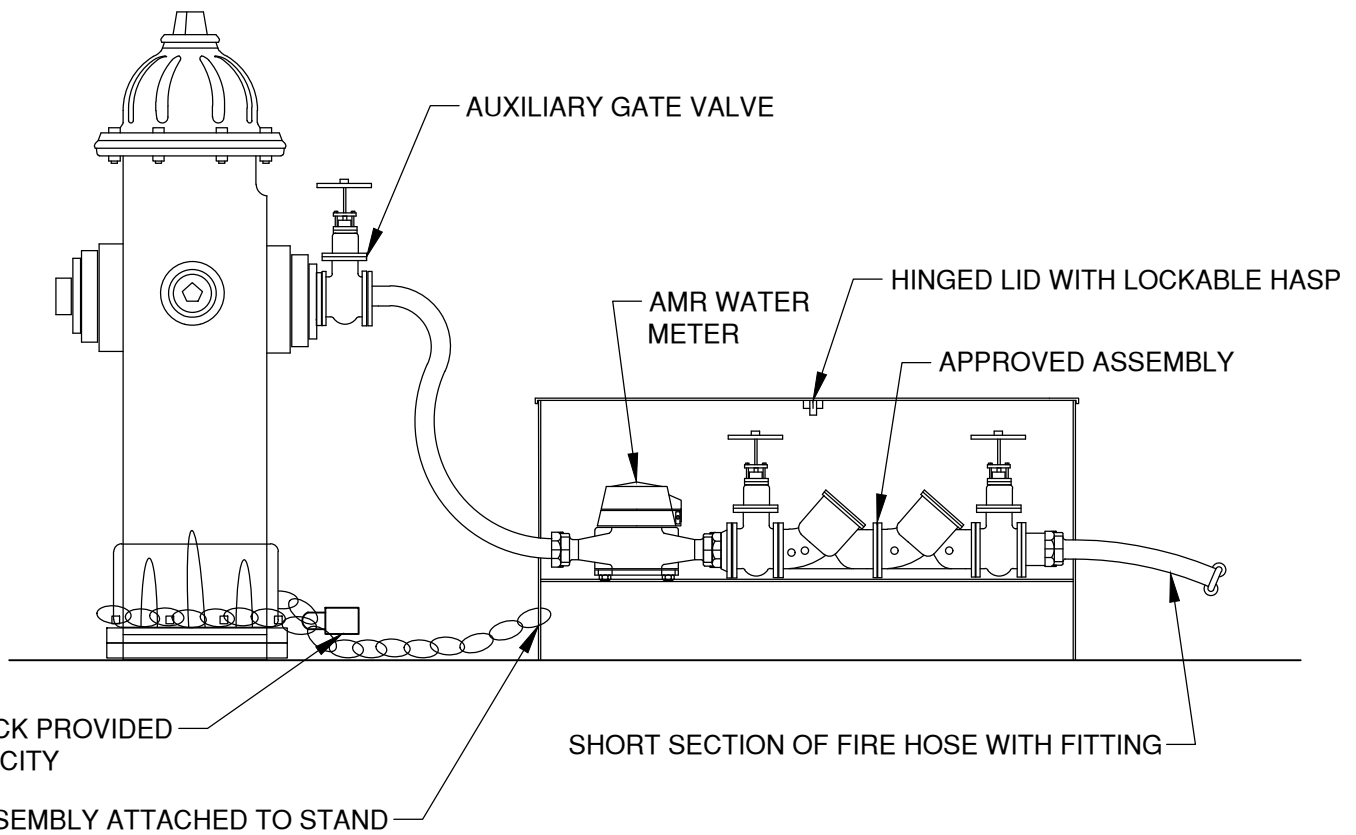




**NOTES:**

1. ALL MATERIAL SHALL BE SCHEDULE 40, GALVANIZED STEEL PIPE.
2. PROTECTIVE FINISH SHALL BE HOT-DIPPED, GALVANIZED GRAY.
3. CONTRACTOR TO INSTALL NO PARKING, FIRE LANE SIGN ON EACH SIDE OF GATE MEETING THE REQUIREMENTS OF OFC D103.6.
4. CONTRACTOR TO INSTALL TYPE III REFLECTIVE STRIPING ON BOTH SIDES OF GATE. STRIPING SHALL BE ALTERNATING RED/WHITE STRIPES, 6" WIDE AT 45 DEGREE ANGLE.
5. CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE PER SPECIFICATION SECTION 00440.
6. GATE POSTS SHALL BE LOCATED OUTSIDE OF THE ROADWAY. IF PAVEMENT AND CURBS ARE PRESENT, GATE POSTS SHALL BE LOCATED BEHIND CURB.
7. COORDINATE INSTALLATION OF KNOX PADLOCK WITH CITY OF BEND FIRE DEPARTMENT.

DRAWN AJD	 <b>CITY OF BEND</b>	<b>CITY OF BEND</b> STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 01/31/2022
REV DATE			APPR
		<b>FIRE GATE</b>	STD DWG W-21



**NOTES:**

1. GATE VALVE, METER, REDUCED PRESSURE BACKFLOW ASSEMBLY & DOUBLE CHECK VALVE ASSEMBLY, & BOX WILL BE SUPPLIED & SET UP BY THE CITY WATER DEPT @ THE CONTRACTORS REQUEST AFTER OBTAINING A CITY HYDRANT PERMIT
2. HYDRANT PERMIT HOLDER TO PROTECT THE ENTIRE UNIT FROM FREEZING
3. BACKFLOW ASSEMBLY MUST BE TESTED IF UNIT IS MOVED TO ANOTHER LOCATION.

DRAWN AJD	
DIV WATER	
REV	DATE



**CITY OF BEND**

**CITY OF BEND**

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

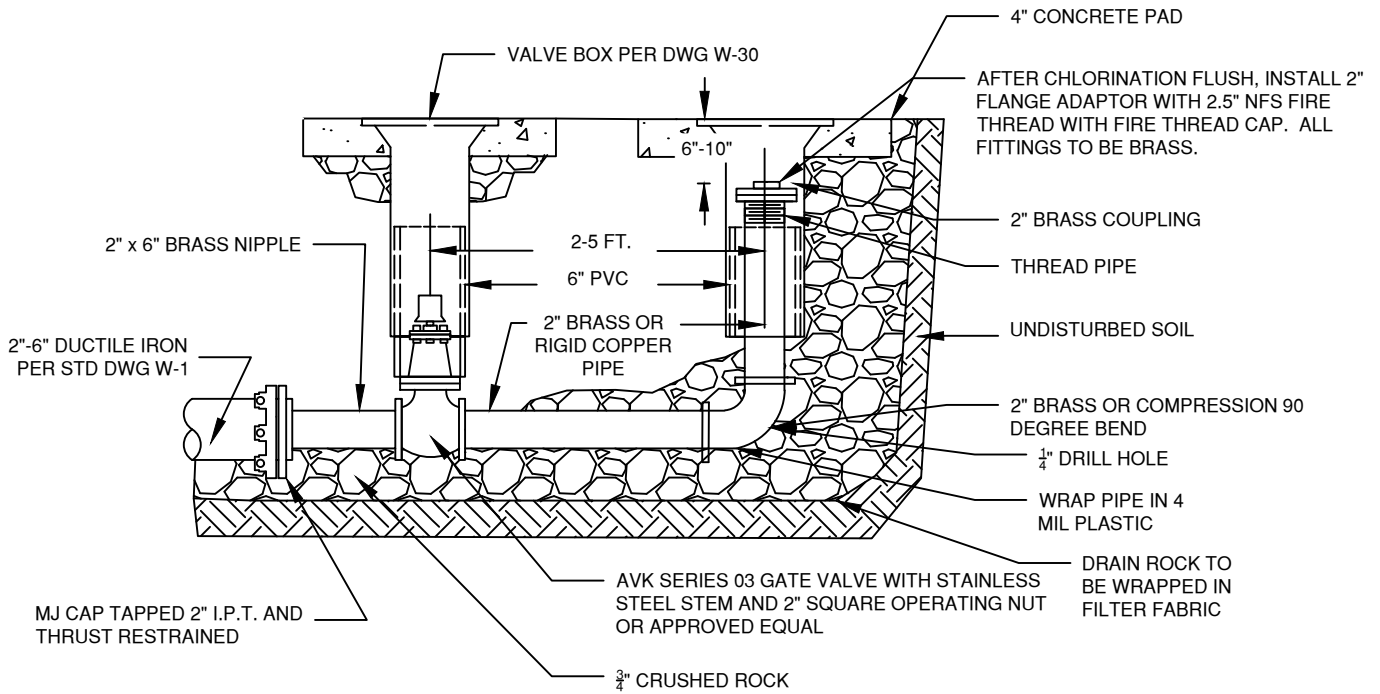
**HYDRANT PERMIT/FILLING TANKER TRUCK**

SCALE NTS

DATE 01/31/2022


APPR

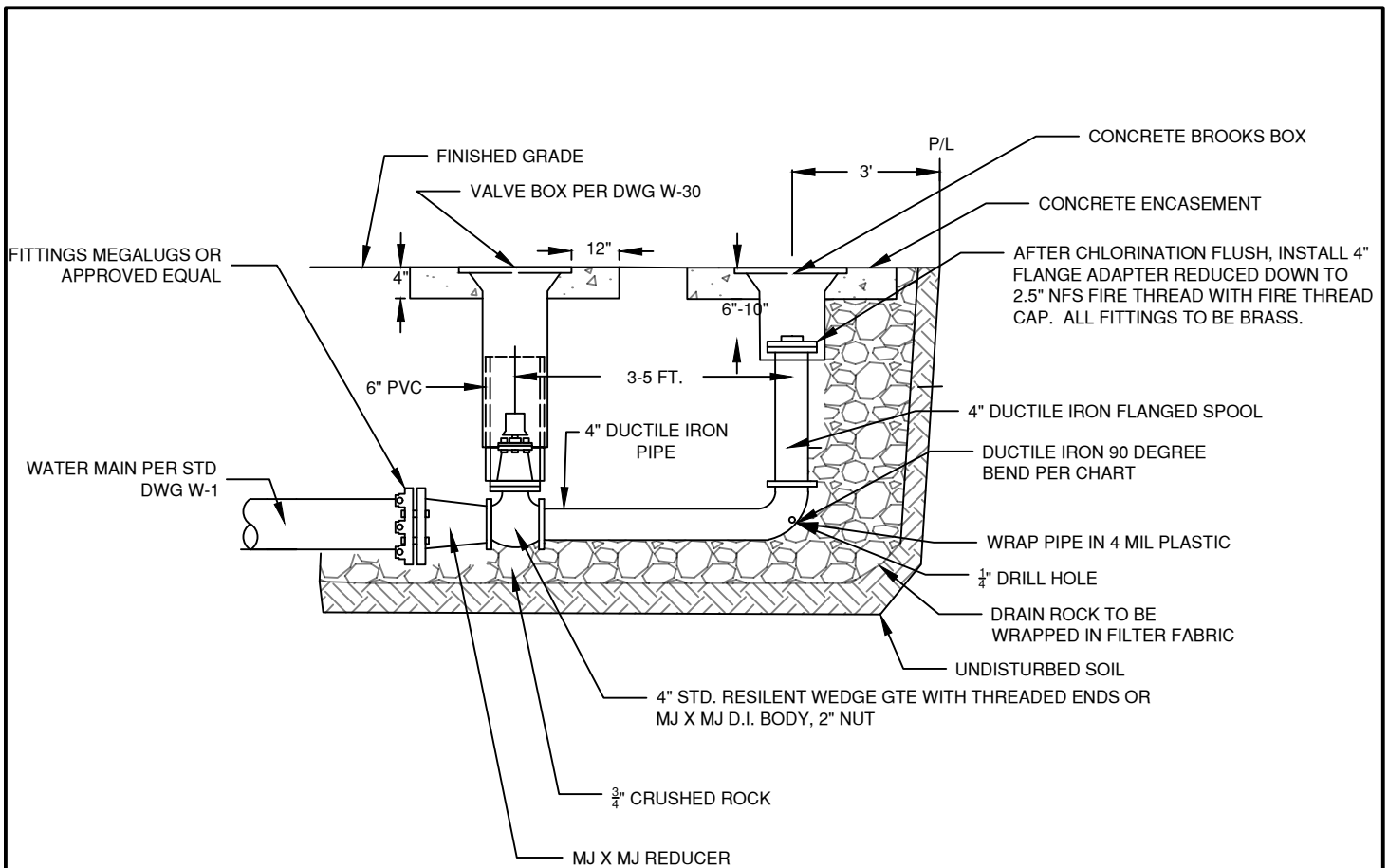
STD DWG W-22



**NOTES:**

1. USE CITY STANDARD VALVE BOXES, LIDS, AND 6" PVC EXTENSION.
2. BLOW-OFF UNIT SHALL BE BACKFILLED WITH 3/4" MINUS CRUSHED ROCK. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(C).
3. TEMPORARY BLOW-OFF IS ONE REMOVED AT THE END OF WATER LINE TESTING AND INSTALLATION AND PRIOR TO PROJECT PAVING. A PERMANENT BLOW-OFF REMAINS ON THE PROJECT AFTER ACCEPTANCE.
4. PLACE BLOW-OFF STANDPIPE 3' INSIDE ROW LINE AT THE END OF STREET (2' FROM BARRICADE).
5. USE CITY STANDARD VALVE BOX, LID, AND 6" PVC EXTENSION FOR BLOW-OFF VALVE.
6. BLOW OFF RISER TO BE ONE CONTINUOUS PIECE.
7. USE EBAA IRON "MEGALUG" OR APPROVED EQUAL RETAINER GLAND ON MJ CAP. RESTRAIN PER ENGINEER.
8. 2" PVC PLUG WITH SQUARE NUT TO BE HAND TIGHTENED ONLY.


DRAWN <b>AJD</b> DIV <b>WATER</b> REV    DATE	 <b>CITY OF BEND</b>	<b>CITY OF BEND</b> STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE <b>NTS</b> DATE <b>01/31/2022</b> APPR STD DWG <b>W-23</b>
<b>STANDARD 2" BLOW-OFF ASSEMBLY</b>			



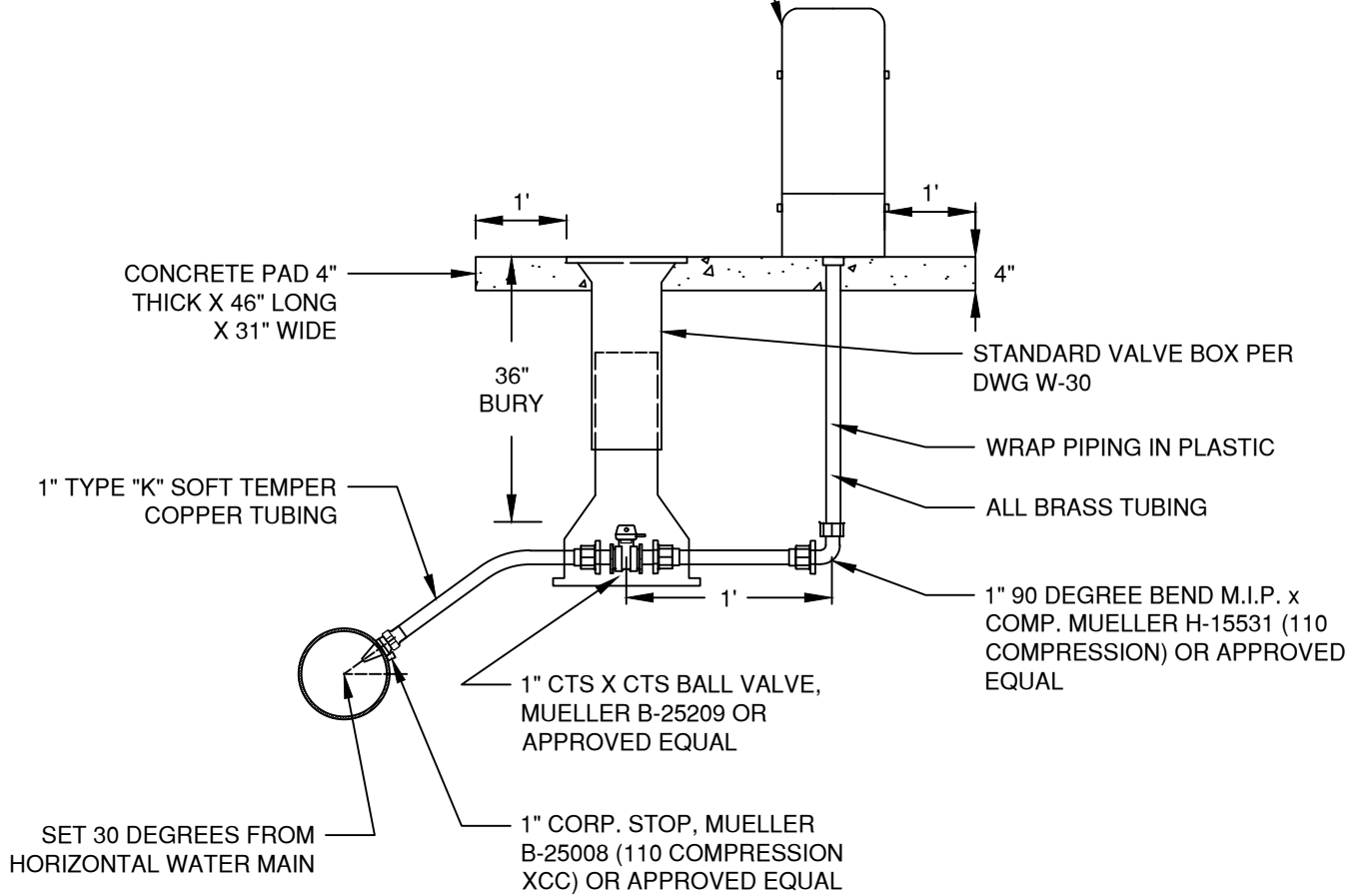
BLOW OFF SIZES REQUIRED	
MAIN SIZE	BLOW OFF SIZE
6" AND BELOW	2" (SEE DWG W-23)
8" - 12"	4"
ABOVE 12"	HYDRANT

**NOTES:**

1. USE CITY STANDARD VALVE BOXES, AND LIDS.
2. BLOW-OFF UNIT SHALL BE BACKFILLED WITH 3/4" MINUS CRUSHED ROCK. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(C).
3. TEMPORARY BLOW-OFF IS ONE REMOVED AT THE END OF WATER LINE TESTING AND INSTALLATION AND PRIOR TO PROJECT PAVING. A PERMANENT BLOW-OFF REMAINS ON THE PROJECT AFTER ACCEPTANCE.
4. PLACE BLOW-OFF STANDPIPE 3' INSIDE ROW LINE AT THE END OF STREET (2' FROM BARRICADE).
5. USE CITY STANDARD VALVE BOX, LID, AND 6" PVC EXTENSION FOR BLOW-OFF VALVE.
6. BLOW OFF RISER TO BE ONE CONTINUOUS PIECE.
7. USE EBAA IRON "MEGALUG" OR APPROVED EQUAL RETAINER GLAND ON MJ CAP. RESTRAIN PER ENGINEER.

DRAWN <b>AJD</b> DIV <b>WATER</b> REV    DATE	 <b>CITY OF BEND</b>	<b>CITY OF BEND</b> STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE <b>NTS</b> DATE <b>01/31/2022</b> APPR STD DWG <b>W-24</b>
<b>4" BLOW-OFF DETAIL</b>			

ECLIPSE NO. 88 SAMPLING STATION WITH THREADED  
 OUTLET NOZZLE AND BRASS INTERIOR, STAND PIPE  
 GALVANIZED EXTERIOR OR APPROVED EQUAL



NOTES:

1. ALL PIPE AND STRUCTURES SHALL BE BACKFILLED WITH SCREENED MAX  $\frac{3}{4}$ " MINUS CRUSHED ROCK. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(C).
2. SET STATION AT LOT LINE UNLESS OTHERWISE SPECIFIED.
3. WHEN CROSSING, CATHODICALLY PROTECTED SYSTEM, INSTALL COPPER IN PVC SLEEVE FOR 5' EACH SIDE OF THE CROSSING.
4. WHERE NO SIDEWALK EXISTS, PLACE CONC. PAD AS SHOWN. WHERE SIDEWALKS EXIST, PLACE MIN. 12" AROUND BACK OF SAMPLE STA. AND INCORPORATE INTO NEW SIDEWALK POUR.

DRAWN AJD  
 DIV WATER  
 REV DATE



CITY OF BEND

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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

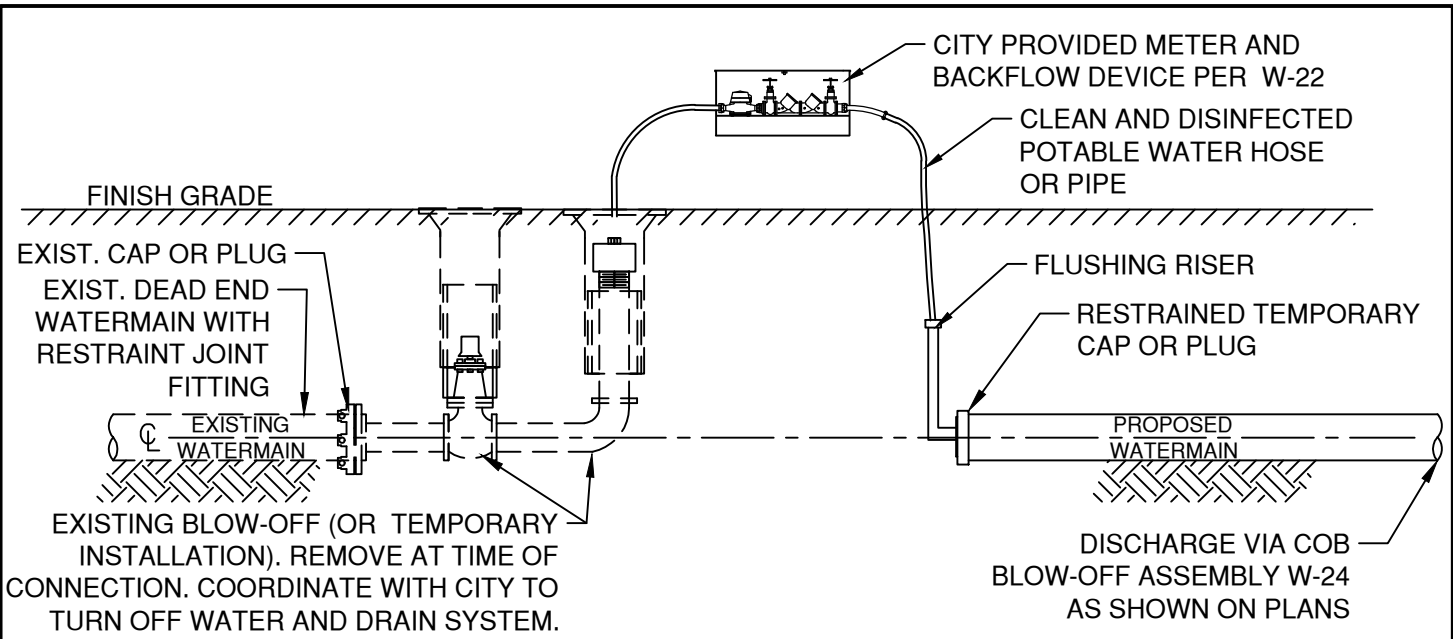
STANDARD WATER SAMPLING STATION

SCALE NTS

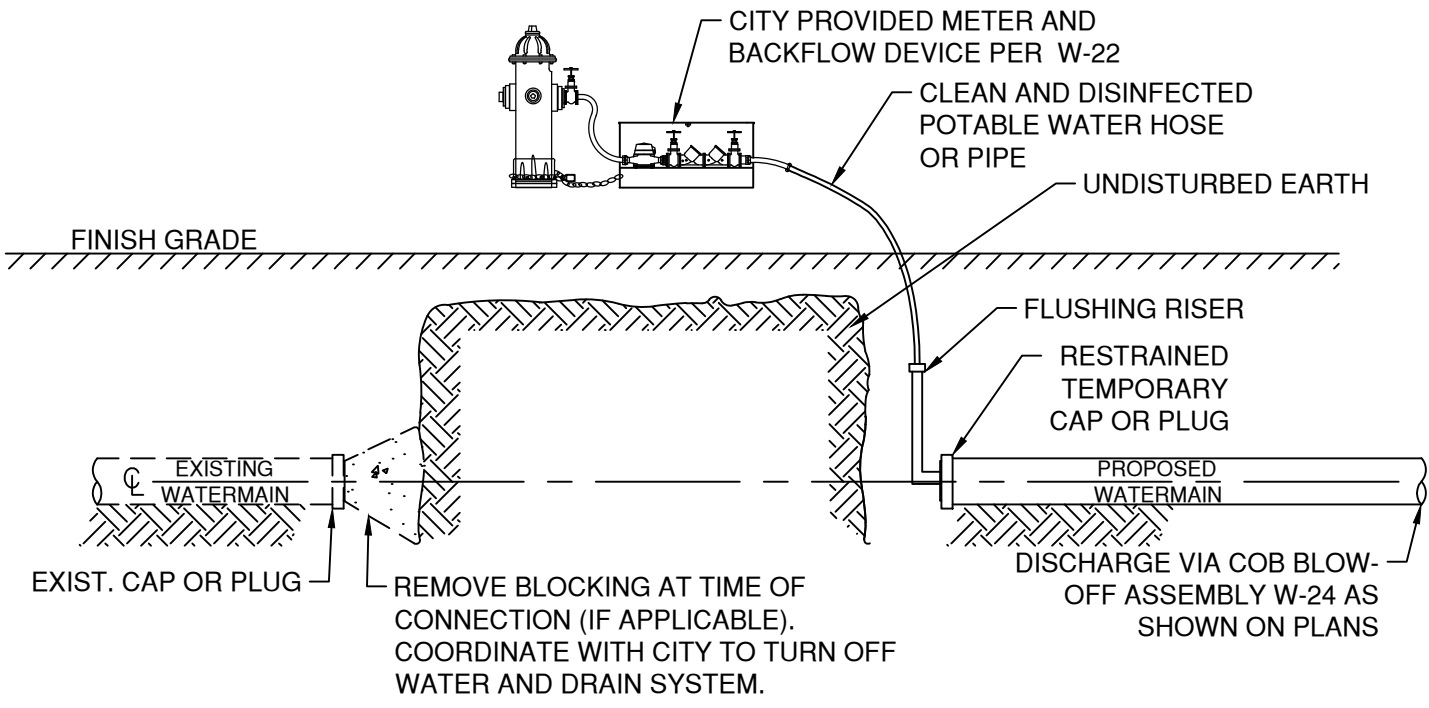
DATE 01/31/2022

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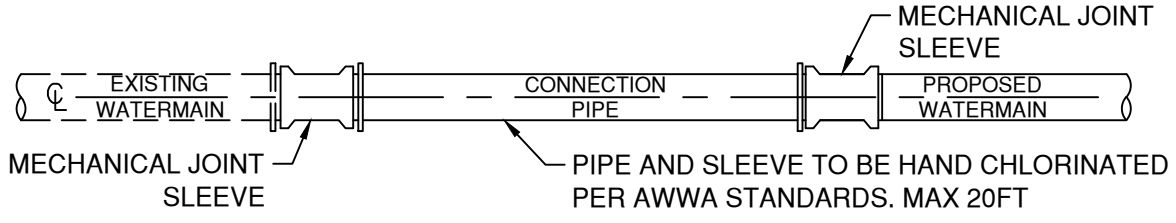
STD DWG W-25



**OPTION 1: TESTING AND FLUSHING USING A BLOW OFF ASSEMBLY**



**OPTION 2: TESTING AND FLUSHING USING NEARBY HYDRANT**



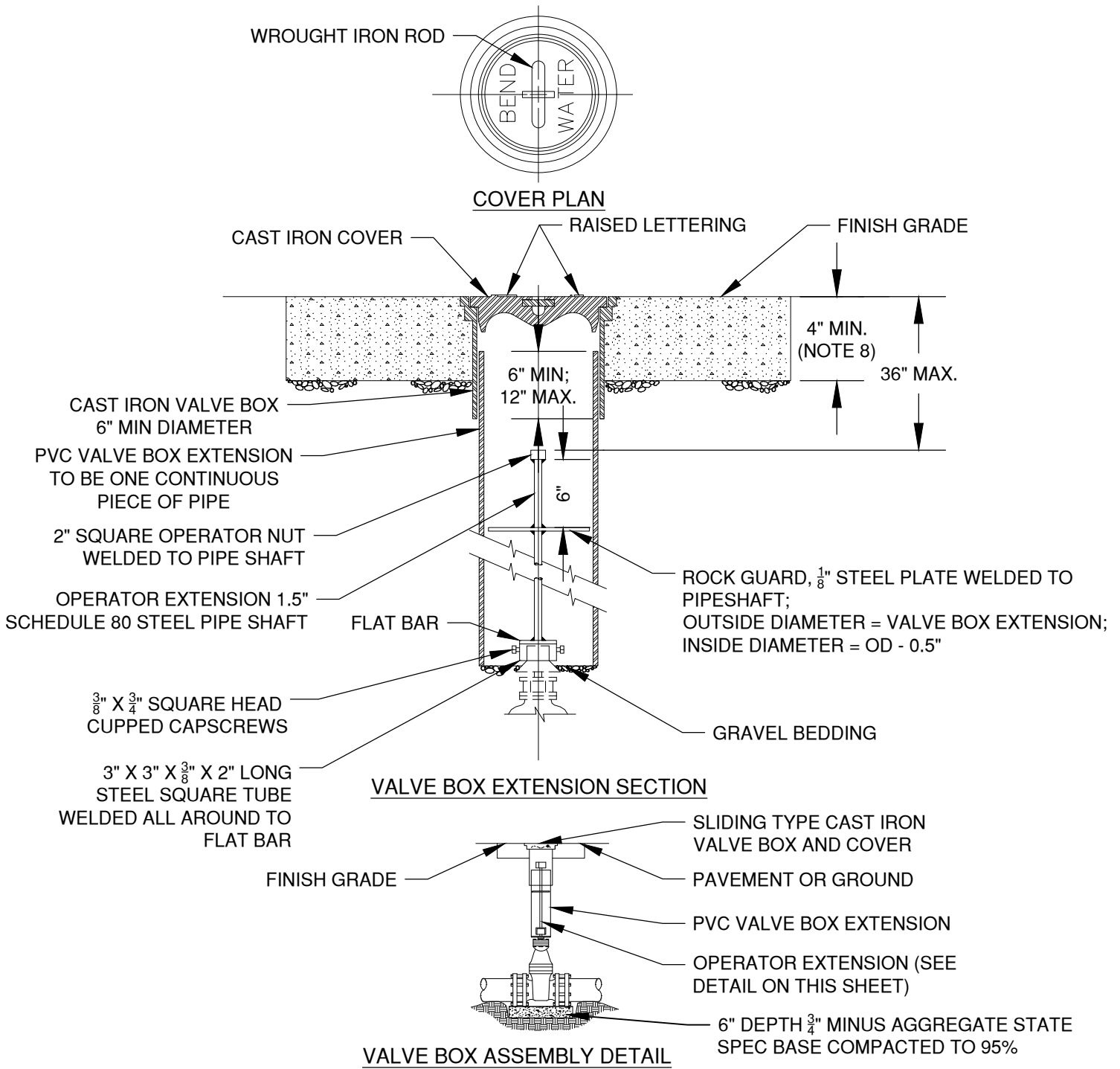
**CONNECTION AFTER TESTING, FLUSHING AND APPROVAL**

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DIV WATER	
REV	DATE



**CITY OF BEND**  
 STANDARD DRAWING  
 710 NW WALL ST., BEND, OREGON 97701  
**CROSS CONNECTION DETAIL**

SCALE NTS
DATE 01/31/2022
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STD DWG W-29



**NOTES:**

1. VALVE BOX NOT TO REST ON OPERATING ASSEMBLY.
2. OPERATOR EXTENSION REQUIRED WHEN VALVE NUT IS DEEPER THAN 6' FROM FINISH GRADE.
3. CENTER VALVE BOX ON AXIS OF OPERATOR NUT.
4. VALVES TO BE INSTALLED WITH COMPACTED AGGR. BASE ON UNDISTURBED GROUND.
5. WELDS SHALL BE MINIMUM 0.5" ALL AROUND.
6. HOT DIP GALVANIZE OPERATOR EXTENSION AFTER FABRICATION.
7. CASTING SHALL MEET H2O LOAD REQUIREMENT.
8. PROVED 24"x24"x4" CONCRETE PAD WITH EXPANSION JOINT AROUND VALVE BOX WHEN INSTALLED OUTSIDE OF ROADWAY.
9. SEE PROJECT PLANS FOR DETAILS NOT SHOWN.
10. ALL VALVE BOXES SHALL BE PLACED OUTSIDE THE PATH OF TRAVEL ON SIDEWALK AND DRIVEWAY APRONS.

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DIV WATER	
REV	DATE



**CITY OF BEND**  
STANDARD DRAWING  
710 NW WALL ST., BEND, OREGON 97701

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**VALVE BOX AND OPERATOR EXTENSION ASSEMBLY**

SCALE NTS
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STD DWG W-30