



September, 2020

RE: The following changes, additions, and/or deletions are hereby made a part of the *Water System Design and Construction Standards* dated November 2019 for projects designed for installation in the Tualatin Valley Water District's system, as fully and completely as if the same were set forth therein. The updates are now included in the document titled *Water System Design and Construction Standards* dated September 2020 and can be found on the District's website (www.tvwd.org/standards). All changes to the November 2019 document are listed below.

There are 24 pages included in this Addendum No. 1.

REVISIONS:

1. Removed all references of his or her in the Standards language.
2. Modified Section 1 header to read "General Requirements".
3. Added section 1.11.C. "Water system materials shall be installed within manufacturer's warranty period, not less than 1-year remaining on the warranty, and no more than 3-years beyond the manufactured date."
4. Modified Section 3.1.A.1. to include "unless otherwise approved".
5. Modified Section 3.1.C.1. to include "or in approved easements".
6. Modified Table 3.1 replacing the Push-On Joint Maximum Deflection Angle (degrees) from "5" to "2.5" to reflect fifty percent of the value recommended by the pipe manufacturers. The Length Offset per 18-foot pipe length (in) replaces the existing "18" with "9".
7. Modified Section 3.1.E.3. to remove "If a dead-end main is located in a cul-de-sac,".
8. Deleted Section 3.1.E.5. on page 3-3 in the Standards. The section read "Dead-end water mains 12-inches in diameter shall have a four-inch blowoff assembly similar to Standard Detail 306 installed at locations specified by the District Engineer."
9. Modified Section 3.2.A.3. to include "prior to acceptance for use by District."
10. Modified Section 3.2.C.6. to read "Bolts shall be T-head bolts, constructed from Type 316 stainless steel or corrosion-resistant, high-strength low-alloy steel that conforms to ANSI/AWWA C111/A21.11 and coated with a ceramic-filled fluorocarbon resin that can

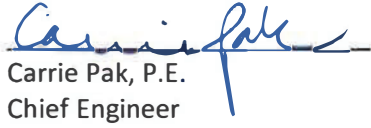
hold up in highly corrosive soil conditions. Nuts and washers shall conform to the same coating requirements and shall match bolt material.”.

11. Modified Section 3.2.D.3. to read “Flange bolts, nuts, and washers shall be constructed from Type 316 stainless steel or corrosion-resistant, high-strength low-alloy steel that conforms to ANSI/AWWA C111/A21.11 and coated with a ceramic-filled fluorocarbon resin that can hold up in highly corrosive soil conditions. Bolt, nut, and washer material shall match.”.
 12. Modified Section 3.2.D.4. to include “No phenolic material shall be used.”.
 13. Modified Section 3.2.G.1. to include “Tapping sleeves shall conform to AWWA C223”.
 14. Modified Table 3.2 to include row for “1.5” and 2” Tapping Saddles Required”
 15. Modified Section 3.2.L.1. to read “any pipe deeper than”. Replaced “8 feet” with “5 feet”.
 16. Modified Section 4.2.B.6. to require “6 mils” of dry film thickness, replacing the existing “10 mils” requirement.
 17. Modified Section 4.2.C.7. to require “8 mils” of dry film thickness, replacing the existing “10 mils” requirement.
 18. Modified Section 4.2.F.1. to remove Clow Valve, M&H Valve Company, and East Jordan, from the acceptable manufacturers list for Butterfly Valves.
 19. Modified Section labels of 4.2.I, 4.2.II, & 4.2.III on page 4-5 to read “4.2.I, 4.2.J, & 4.2.K”.
 20. Modified Section 5.1.A.4. to include “Hydrants shall not be place in paved areas unless approved by District Engineer”.
 21. Modified Section 7.2.B.3. to match OSHA ladder requirements.
 22. Deleted Section 7.2.I. “Interior Paint” on Page 7-4 in the Standards and Note 4 on Details 606-610.
 23. Modified Section 8.4.A.2.b. to reference “mega flange coupling adapter” and add “Inlet spool shall be flange by plain end, refer to Detail 801.”.
 24. Modified Detail 302 Table 1 to include updated Thrust Block Bearing Area (SF).
 25. Modified Detail 302 & 304, added “SAFETY FACTOR SHALL BE 1.5.” on Note 7 Detail 302, and added “AND INCLUDE A SAFETY FACTOR OF 1.5.” to Note 1 Detail 304.
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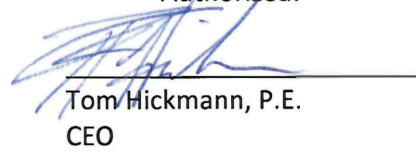
26. Modified Detail 304 to call out "PROJECT ENGINEER" on Note 1, replacing "PROJECT ENGINEER OF RECORD".
 27. Modified Detail 304 Note 5 to include "ENGINEER SHALL PROVIDE DESIGN AND SUPPORTING CALCULATIONS IF TEST PRESSURE EXCEEDS 150 PSI".
 28. Modified Detail 306, added Note 3 "BLOWOFF SHALL NOT BE INSTALLED UNDER ROAD BARRICADE SIGNS."
 29. Modified Detail 307, added Note 4 "BLOWOFF SHALL NOT BE INSTALLED UNDER ROAD BARRICADE SIGNS."
 30. Modified Detail 309 Note 4 to read "INSTALL ON MAINS DEEPER THAN 5 FEET...", replacing "INSTALL ON MAINS DEEPER THAN 7 FEET..."
 31. Modified Detail 401 Note B to read "APPROXIMATELY 24" SPOOL REQUIRED TO ALLOW FOR 18" SPACING BETWEEN FITTINGS".
 32. Modified Detail 503, added Note 4 "WHERE ALLOWABLE WITHIN CITY OR COUNTY JURISDICTIONS, HYDRANTS MAY BE PLACED WITHIN THE SIDEWALK, IF THE SPACING REQUIREMENTS ARE MET AS SHOWN.". Added sidewalk dimensions to indicate the requirements of Note 4.
 33. Modified Details 601-604 to call out "SEE SECTION 8.2 OF THE STANDARDS FOR BACKFLOW REQUIREMENTS" in the notes.
 34. Modified Details 606-610 to remove Note 4 "PAINT INTERIOR WALLS AND LID BOTTOM WHITE."
 35. Modified Detail 701 Keynote A to replace "BILCO TYPE LU-2" with "BILCO TYPE LU-4".
 36. Modified Detail 702 Notes G and H, added "NOT APPLICABLE IF SUMP PUMP IS INSTALLED."
 37. Modified Detail 703 to call out "1" COPPER TUBING" replacing "COPPER TUBING". Added Note 10 "PROVIDE SCHEDULE 40 PVC PIPING AND FITTINGS TO CONNECT BOTH THE SUCTION AND OUTLET OF THE SUMP PUMP". Added Note 11 "BENDING OF COPPER TUBING IS PERMITTED. KINKS IN TUBING ARE NOT ALLOWED."
 38. Modified Detail 801 to include FDC drawing and requirements.
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The effective date for incorporating these changes is September, 2020.

Approved:


Carrie Pak, P.E.
Chief Engineer

Authorized:


Tom Hickmann, P.E.
CEO

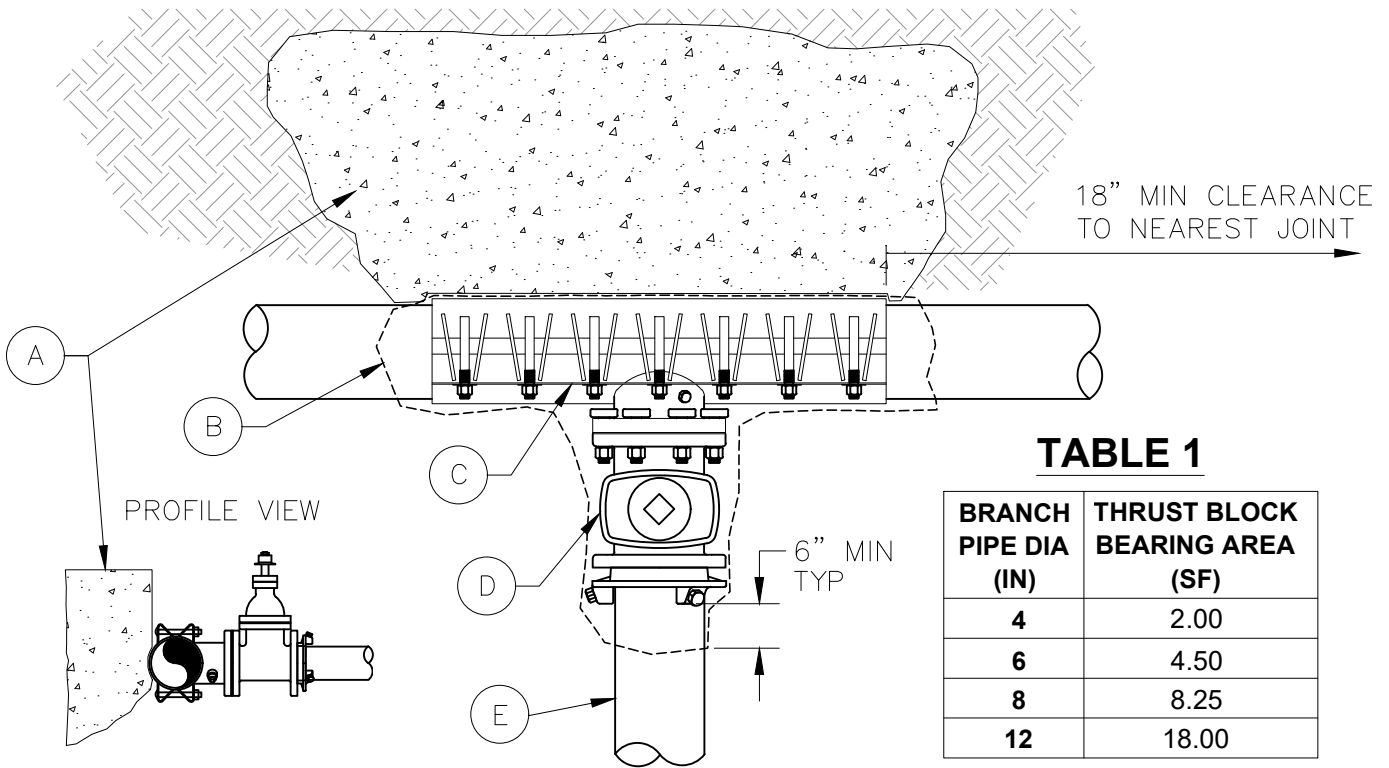


TABLE 1

BRANCH PIPE DIA (IN)	THRUST BLOCK BEARING AREA (SF)
4	2.00
6	4.50
8	8.25
12	18.00

SEE NOTE 7

KEYNOTES:

- A. CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH. THRUST BLOCK SIZE SHALL BE PER TABLE 1 AND SHALL NOT BE LESS THAN ONE FOOT IN ANY DIMENSION. CONCRETE SHALL BE MINIMUM 3500 PSI. BRANCH PIPE SHALL NOT BE PRESSURIZED FOR 5 DAYS.
- B. WRAP TAPPING SADDLE AND VALVE WITH 3 LAYERS OF POLYTHEYLENE ENCASEMENT PRIOR TO POURING THRUST BLOCK AND BACKFILLING. EXTEND POLYETHYLENE 6" MINIMUM BEYOND SADDLE AND VALVE AND SECURE TO PIPE WITH POLYETHYLENE PIPE WRAP TAPE. SEE DETAIL 301.
- C. STAINLESS STEEL TAPPING SADDLE WITH GASKET AND FLANGED CONNECTION.
- D. LINE-SIZE GATE VALVE (FLG X MJ) PER DETAIL 402.
- E. JOINTS ON BRANCH PIPE SHALL BE RESTRAINED.

NOTES:

- 1. BEFORE INSTALLING TAPPING SADDLE, CONTRACTOR SHALL THOROUGHLY CLEAN PIPE TO REMOVE ALL DIRT, ROCKS, AND OTHER FOREIGN MATERIAL FROM PIPE WHERE SADDLE WILL BE INSTALLED.
- 2. SADDLE BOLTS SHALL BE TORQUED TO MANUFACTURER'S SPECIFICATIONS. BOLTS SHALL CONFORM TO ANSI/AWWA C111/A21.11.
- 3. CONTRACTOR SHALL ENSURE THAT GASKET IS PROPERLY ALIGNED AND FREE OF FOREIGN MATERIAL PRIOR TO TIGHTENING SADDLE.
- 4. SADDLE LOCATION AND INSTALLATION SHALL BE APPROVED BY DISTRICT INSPECTOR PRIOR TO TAPPING.
- 5. CONTRACTOR SHALL AIR TEST SADDLE TO 40 PSI PRIOR TO TAPPING.
- 6. CONTRACTOR SHALL FLUSH AND PRESSURE TEST VALVE FOR PRIOR TO BACKFILLING.
- 7. ENGINEER SHALL PROVIDE CALCULATION AND SIZING IF TEST PRESSURE EXCEEDS 150 PSI. SAFETY FACTOR SHALL BE 1.5.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

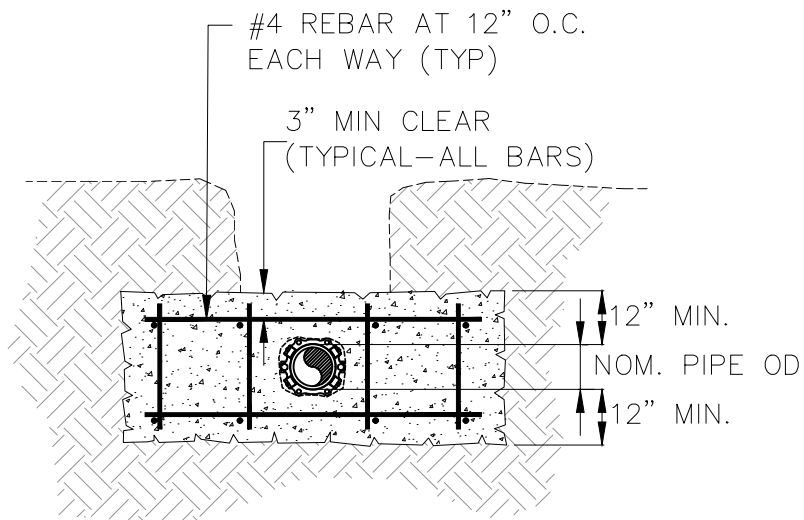
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TAPPING SADDLE

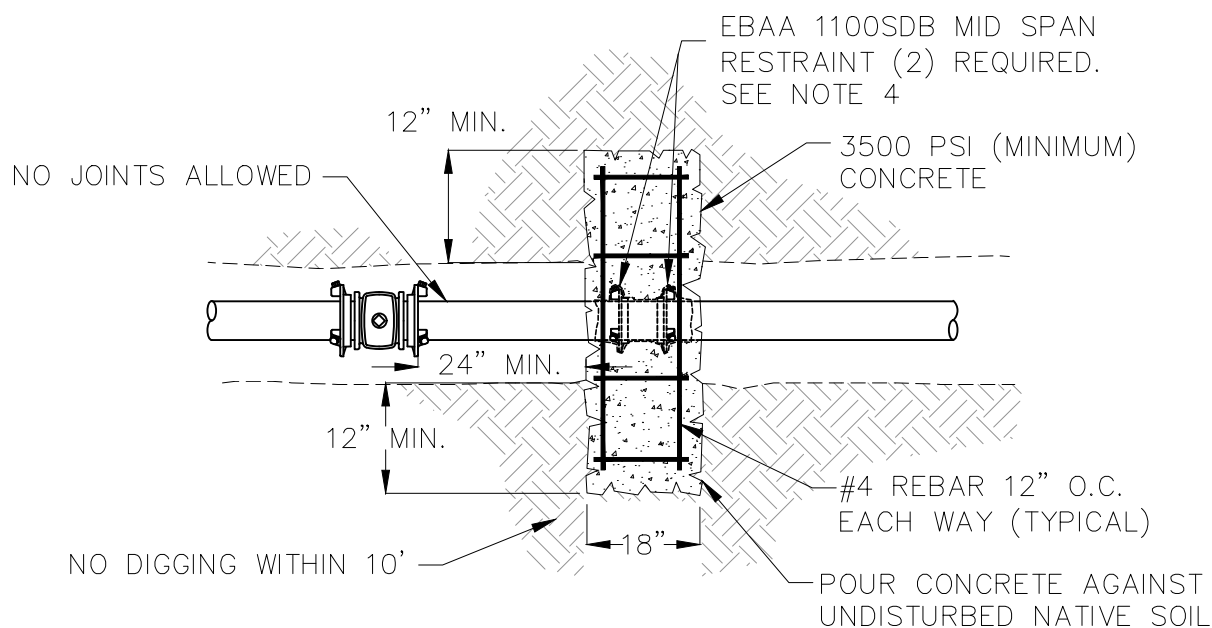
DATE: 9/2020

DETAIL

302



SECTION



PLAN

NOTE:

1. CONCRETE STRADDLE BLOCKS FOR 12" AND LARGER MAINS SHALL BE DESIGNED AND STAMPED BY THE PROJECT ENGINEER. PROVIDE CALCULATIONS FOR REVIEW AND APPROVAL, AND INCLUDE A SAFETY FACTOR OF 1.5.
2. USE 2" OFFSET OR MANUFACTURER RECOMMENDATION FOR MID-SPAN RESTRAINT.
3. TIE REBAR TO ITSELF TO HOLD FORM.
4. WRAP RESTRAINTS WITH 1 LAYER OF POLYETHYLENE ENCASEMENT PRIOR TO POURING CONCRETE. EXTEND PE WRAP A MINIMUM OF 6" BEYOND RESTRAINTS. SECURE TO PIPE WITH 10 MIL PVC PIPE WRAP TAPE
5. ENGINEER SHALL PROVIDE DESIGN AND SUPPORTING CALCULATION IF TEST PRESSURE EXCEEDS 150 PSI.



TUALATIN VALLEY
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SCALE: NONE

STRADDLE BLOCK
8" AND SMALLER
MAINLINE

DATE: 9/2020

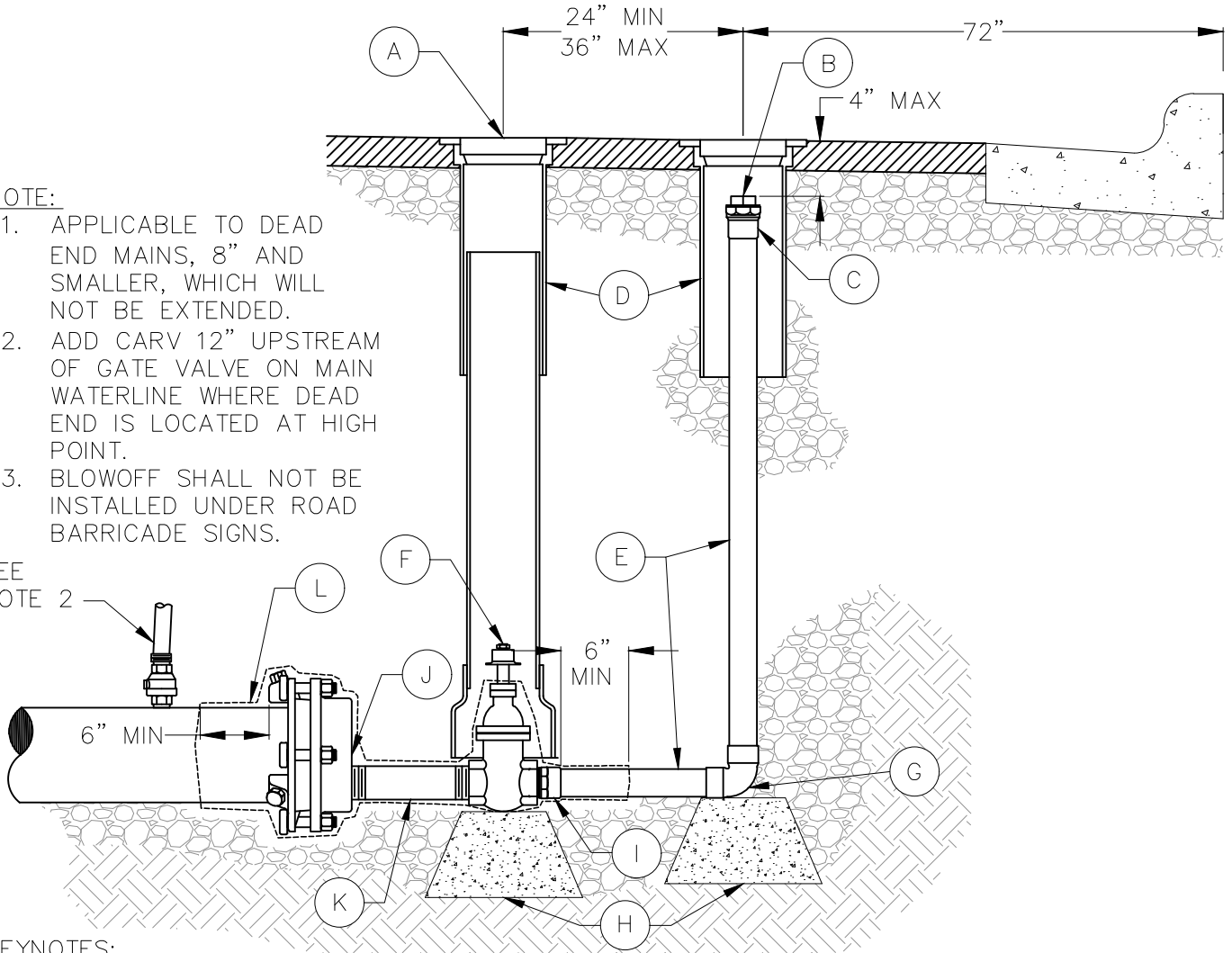
DETAIL

304

NOTE:

1. APPLICABLE TO DEAD END MAINS, 8" AND SMALLER, WHICH WILL NOT BE EXTENDED.
2. ADD CARV 12" UPSTREAM OF GATE VALVE ON MAIN WATERLINE WHERE DEAD END IS LOCATED AT HIGH POINT.
3. BLOWOFF SHALL NOT BE INSTALLED UNDER ROAD BARRICADE SIGNS.

SEE NOTE 2



KEYNOTES:

- A. FINISHED GRADE. IF OUTSIDE THE PAVED AREA PROVIDE 4" THICK CONCRETE PAD OVER 4" COMPACTED 1"-0" CRUSHED ROCK. PAD SHALL EXTEND OF A MINIMUM OF 6" AROUND VALVE BOXES. REINFORCE CONCRETE WITH #4 REBAR MAX 12" O.C. CENTERED VERTICALLY IN SLAB. PROVIDE 3" CLEARANCE FROM EDGES AND PENETRATIONS. SEE DETAIL 402.
- B. 2" BRASS PLUG HAND-TIGHT. USE FOOD GRADE GREASE ON PLUG THREADS.
- C. 2" ADAPTER. COPPER SWEAT TO FIPT.
- D. VALVE BOX ASSEMBLY PER DETAILS 402 AND 403.
- E. 2" TYPE K RIGID COPPER TUBING OR THREADED BRASS PIPING.
- F. 2" IRON BODY GATE VALVE WITH 2" OPERATOR NUT.
- G. 2" 90° BEND, COPPER SLIP OR THREADED BRASS.
- H. 8" X 8" CONCRETE PIER BLOCK ON NATIVE SOIL.
- I. 2" ADAPTER. COPPER SWEAT TO MIPT.
- J. MJ CAP WITH OFFSET 2" TAP AT BOTTOM. TAP MAY BE CENTERED ON CAP FOR 4" MAINS.
- K. 2" X 12" BRASS NIPPLE.
- L. WRAP VALVE WITH 3 LAYERS OF POLYTHEYLENE ENCASEMENT. EXTEND POLYETHYLENE 6" MINIMUM BEYOND VALVE AND CAP. SECURE TO PIPE WITH 10 MIL PVC PIPE WRAP TAPE. SEE DETAIL 301.



TUALATIN VALLEY
WATER DISTRICT

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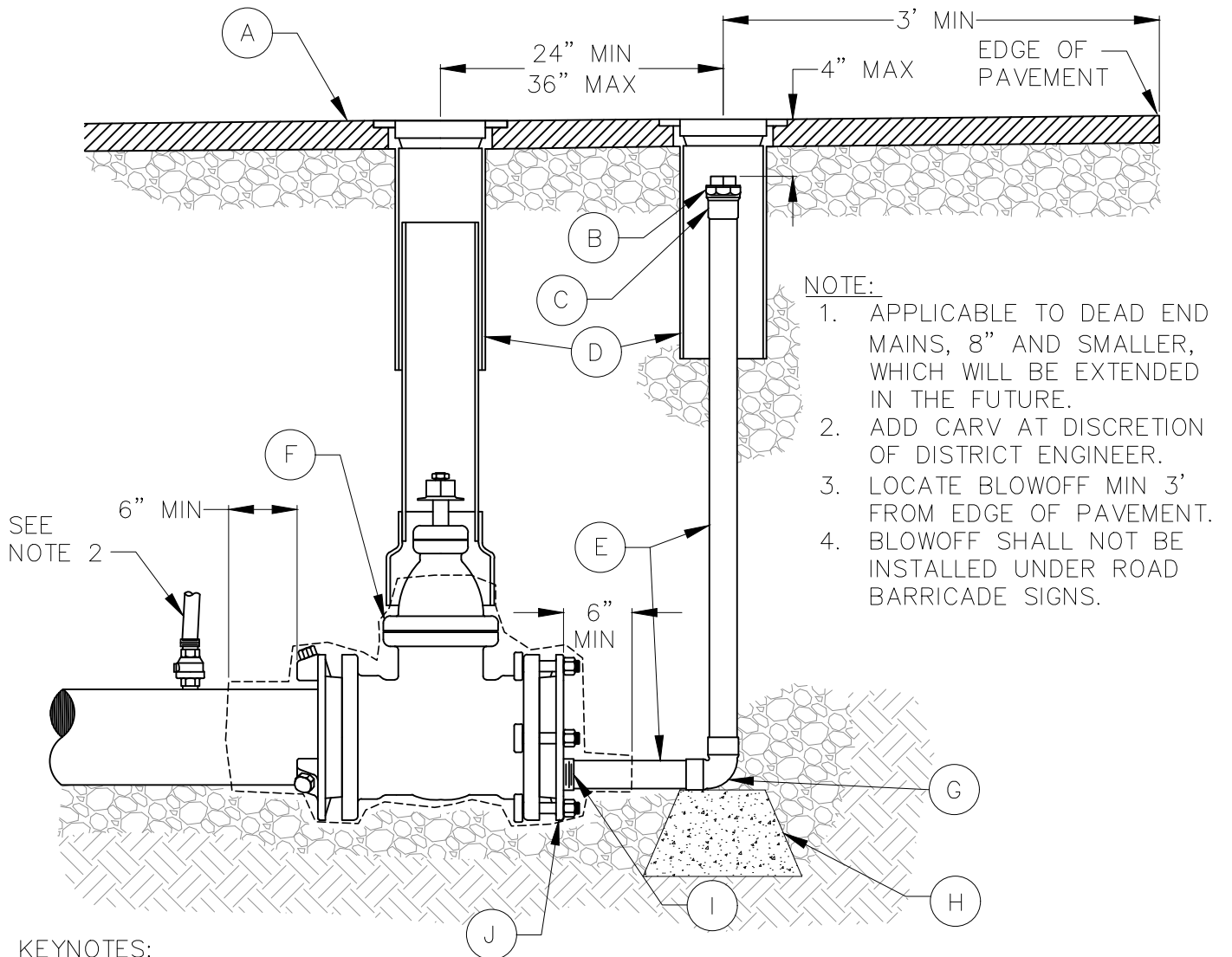
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2" STANDARD BLOWOFF
(4"-8" MAINLINE)

DATE: 9/2020


DETAIL

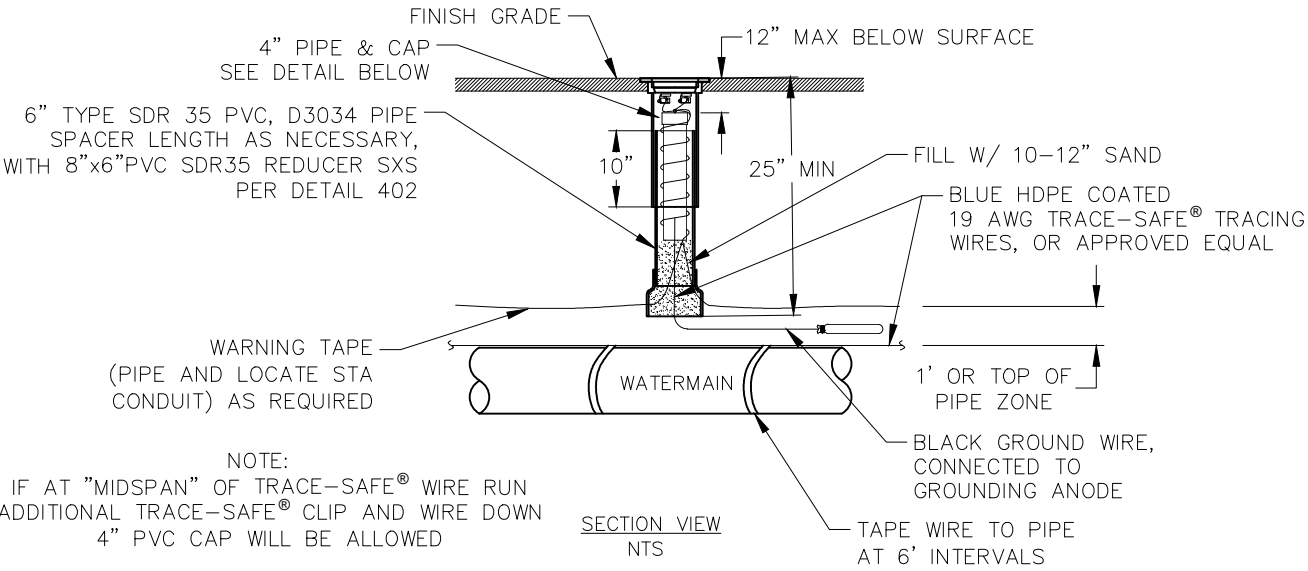
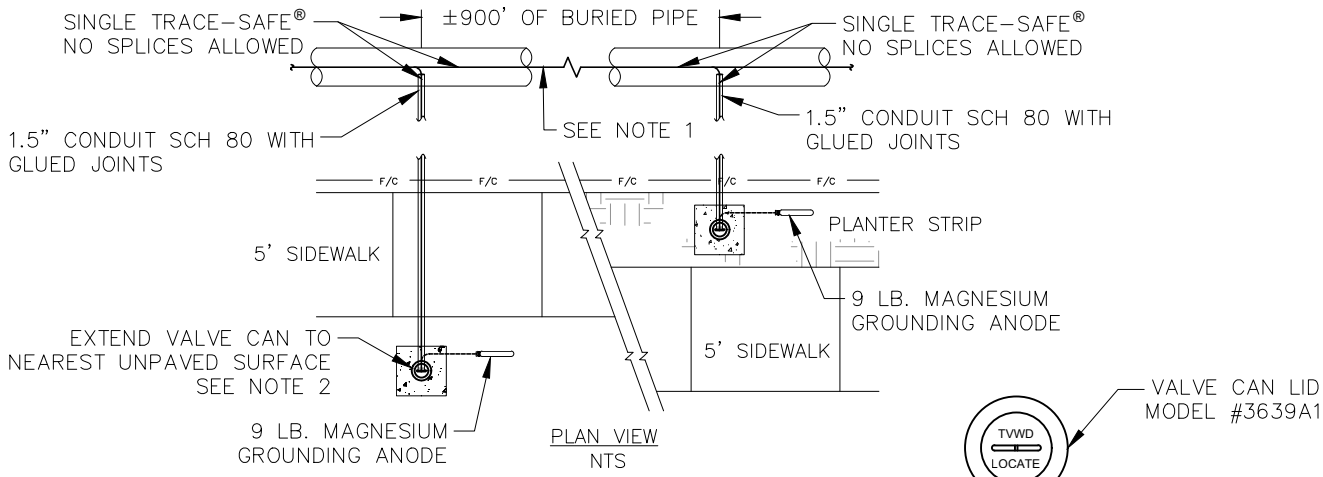
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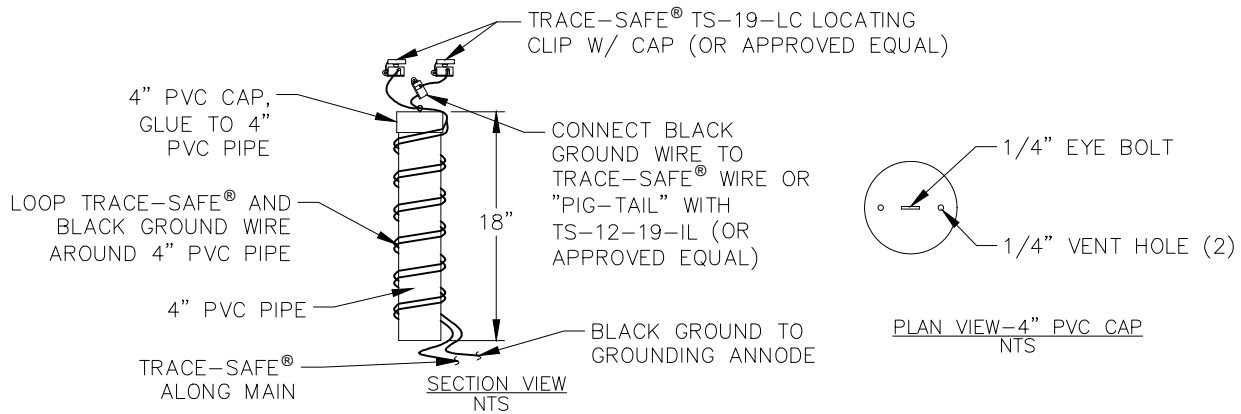
KEYNOTES:

- A. FINISHED GRADE. IF OUTSIDE THE PAVED AREA PROVIDE 4" THICK CONCRETE PAD OVER 4" COMPACTED 1"-0" CRUSHED ROCK. PAD SHALL EXTEND OF A MINIMUM OF 6" AROUND VALVE BOXES. REINFORCE CONCRETE WITH #4 REBAR MAX 12" O.C. CENTERED VERTICALLY IN SLAB. PROVIDE 3" CLEARANCE FROM EDGES AND PENETRATIONS. SEE DETAIL 402.
- B. 2" BRASS PLUG HAND-TIGHT. USE FOOD GRADE GREASE ON PLUG THREADS.
- C. 2" ADAPTER. COPPER SWEAT TO FIPT.
- D. VALVE BOX ASSEMBLY PER DETAIL 402 AND 403.
- E. 2" TYPE K RIGID COPPER TUBING OR THREADED BRASS PIPING.
- F. LINE SIZE GATE VALVE. WRAP VALVE WITH 3 LAYERS OF POLYTHEYLENE ENCASMENT. EXTEND POLYETHYLENE 6" MINIMUM BEYOND VALVE AND SECURE TO PIPE WITH 10 MIL PVC PIPE TAPE. SEE DETAIL 301.
- G. 2" 90° BEND COPPER SLIP OR THREADED BRASS.
- H. 8" X 8" CONCRETE PIER BLOCK ON NATIVE SOIL.
- I. 2" ADAPTER. COPPER SWEAT OR THREADED BRASS TO MIPT.
- J. MJ PLUG WITH OFFSET 2" TAP AT BOTTOM. TAP MAY BE CENTERED ON MJ PLUG FOR 4" MAINS.

 TUALATIN VALLEY WATER DISTRICT	DESIGNED: MBA	PHASE BREAK END FOR FUTURE EXTENSION (4"-8" MAINLINE)	DATE: 9/2020
	APPROVED: NWA		DETAIL
	SCALE: NONE		307



NOTE:
IF AT "MIDSPAN" OF TRACE-SAFE® WIRE RUN
ADDITIONAL TRACE-SAFE® CLIP AND WIRE DOWN
4" PVC CAP WILL BE ALLOWED



- NOTES:
1. TRACING WIRE TO BE SINGLE CONTINUOUS LENGTH OF WIRE BETWEEN LOCATE STATIONS. IF SPLICE IS NEEDED, TVWD APPROVAL REQUIRED.
 2. PROVIDE CONCRETE PAD AROUND VALVE BOX IF LOCATED OUTSIDE OF PAVED AREAS. PER TVWD DETAIL 402.
 3. INSTALLATION OF CONDUIT UNDER CURB AND SIDEWALK SHALL UTILIZE TRENCHLESS METHOD TO AVOID DAMAGE TO SIDEWALK.
 4. INSTALL ON MAINS DEEPER THAN 5 FEET REGARDLESS OF SIZE. TRACER WIRES SHALL NOT BE INSTALLED DEEPER THAN 8 FEET, FOR PIPES DEEPER THAN 8 FEET INSTALL TRACER WIRE ABOVE PIPE AT 8 FEET DEPTH.



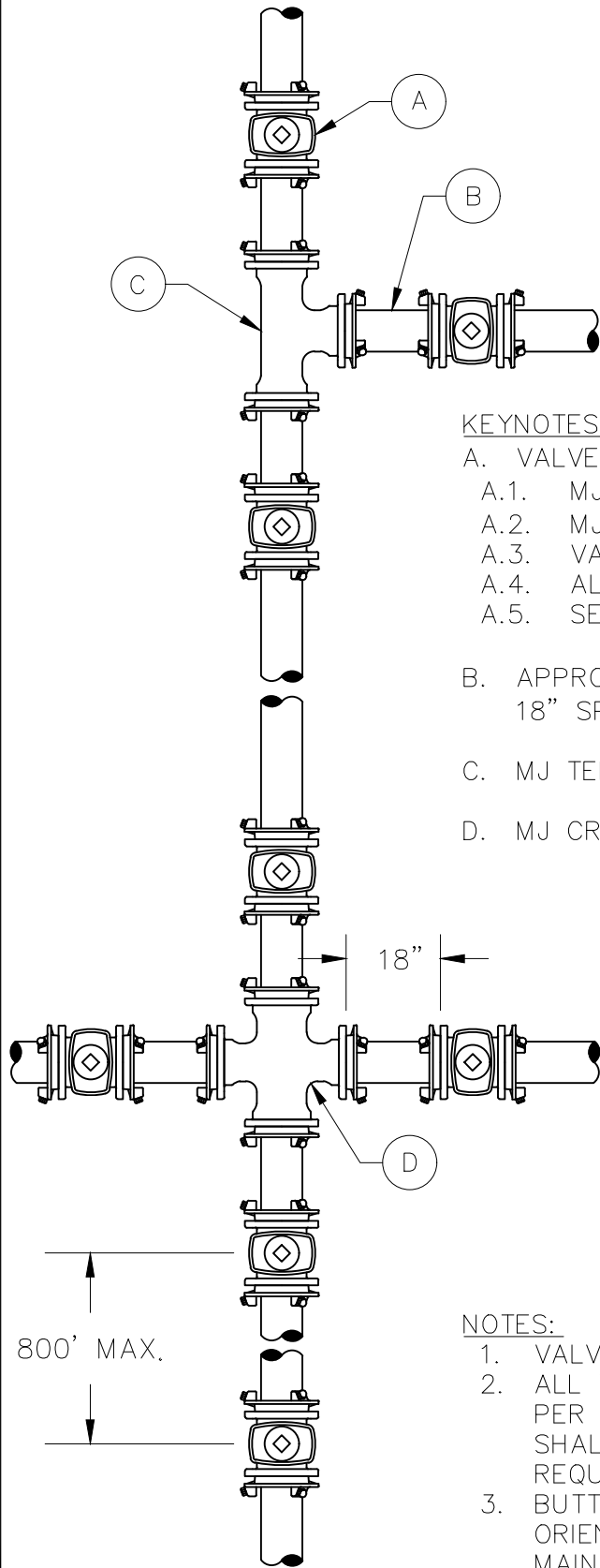
TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA
APPROVED: NWA
SCALE: NONE

TRACER WIRE

DATE: 9/2020

DETAIL
309



KEYNOTES:

A. VALVE (TYP)

- A.1. MJ GATE VALVES 8" AND SMALLER.
- A.2. MJ BUTTERFLY VALVES 12" AND LARGER.
- A.3. VALVE SIZE SHALL MATCH MAINLINE SIZE.
- A.4. ALL JOINTS SHALL BE RESTRAINED.
- A.5. SEE DETAIL 402 FOR VALVE BOX REQUIREMENTS.

B. APPROXIMATELY 24" SPOOL REQUIRED TO ALLOW FOR 18" SPACING BETWEEN FITTINGS.

C. MJ TEE.

D. MJ CROSS.

NOTES:

1. VALVES SHALL BE INSTALLED PER DETAIL 402.
2. ALL VALVES SHALL BE WRAPPED IN POLYETHYLENE PER DETAIL 402. DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE WHEN REQUIRED.
3. BUTTERFLY VALVE OPERATOR NUTS SHALL BE ORIENTED ON THE NORTH OR EAST SIDE OF THE MAIN



TUALATIN VALLEY
WATER DISTRICT

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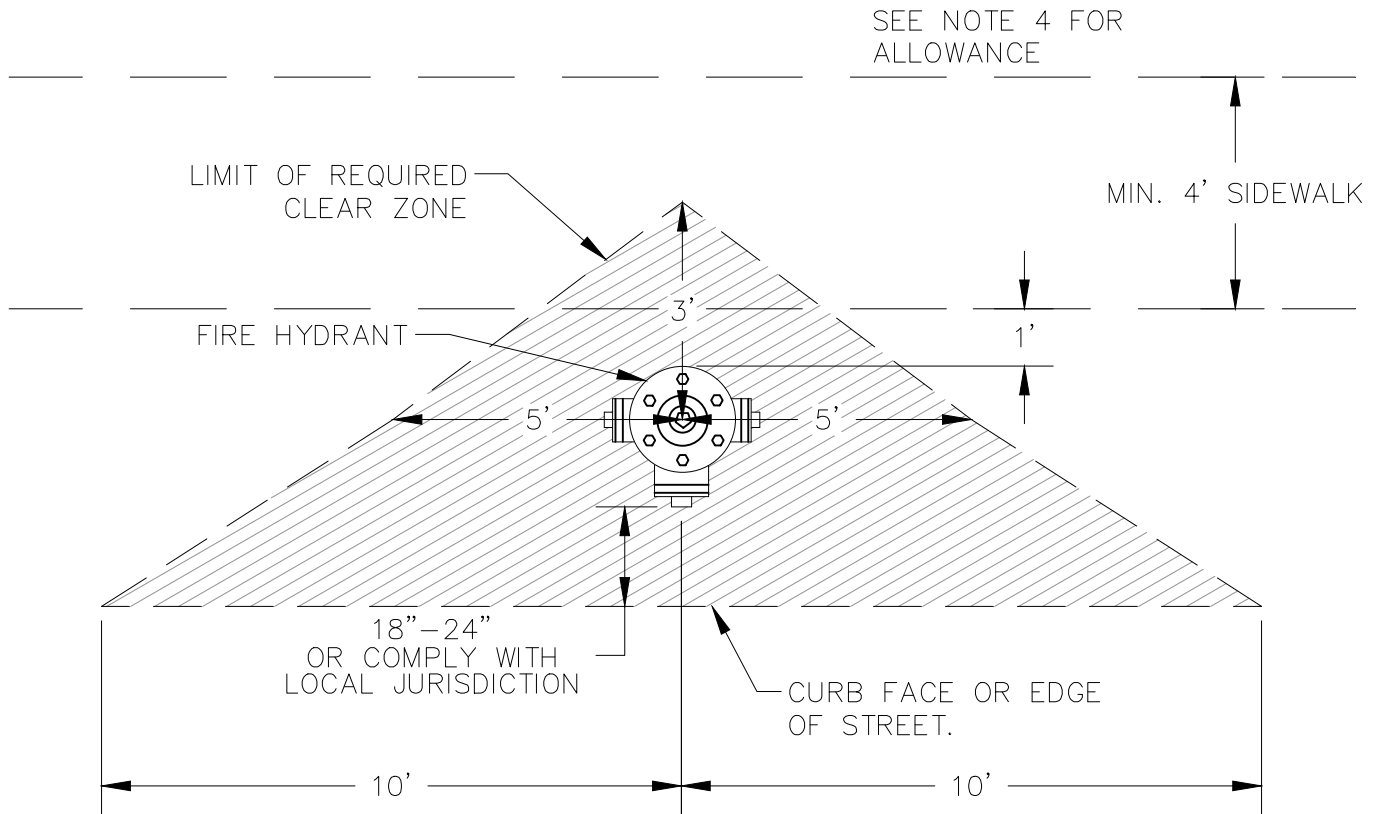
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**TYPICAL WATER VALVE
LOCATION**

DATE: 9/2020

DETAIL

401




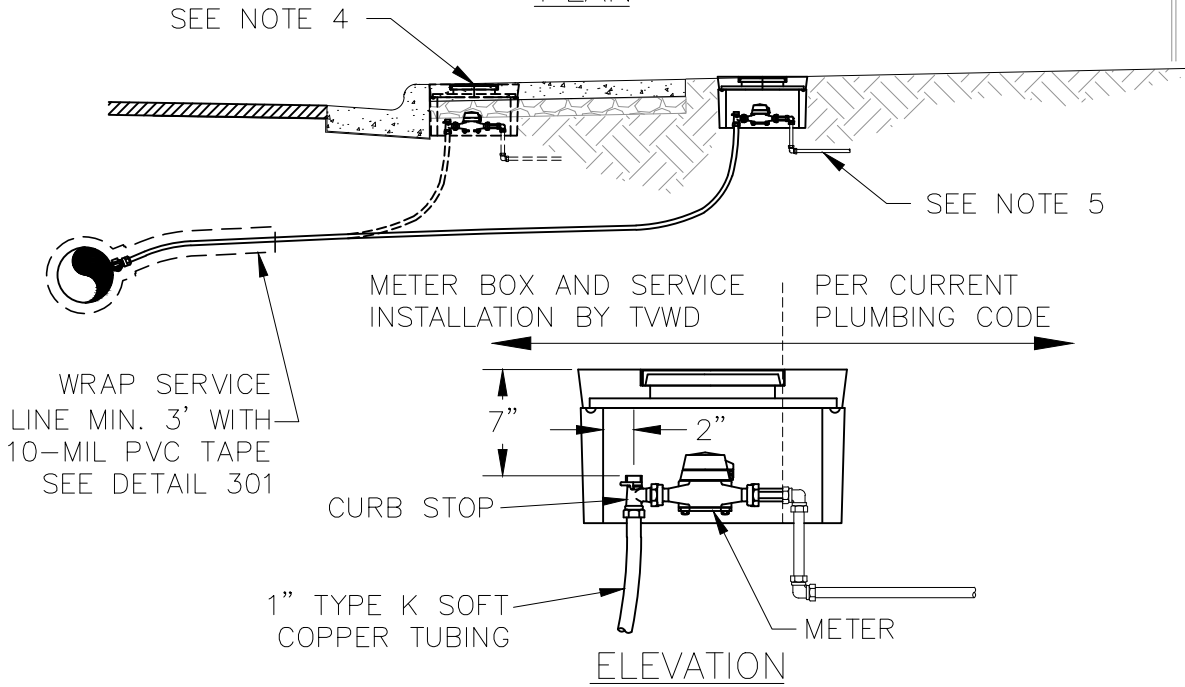
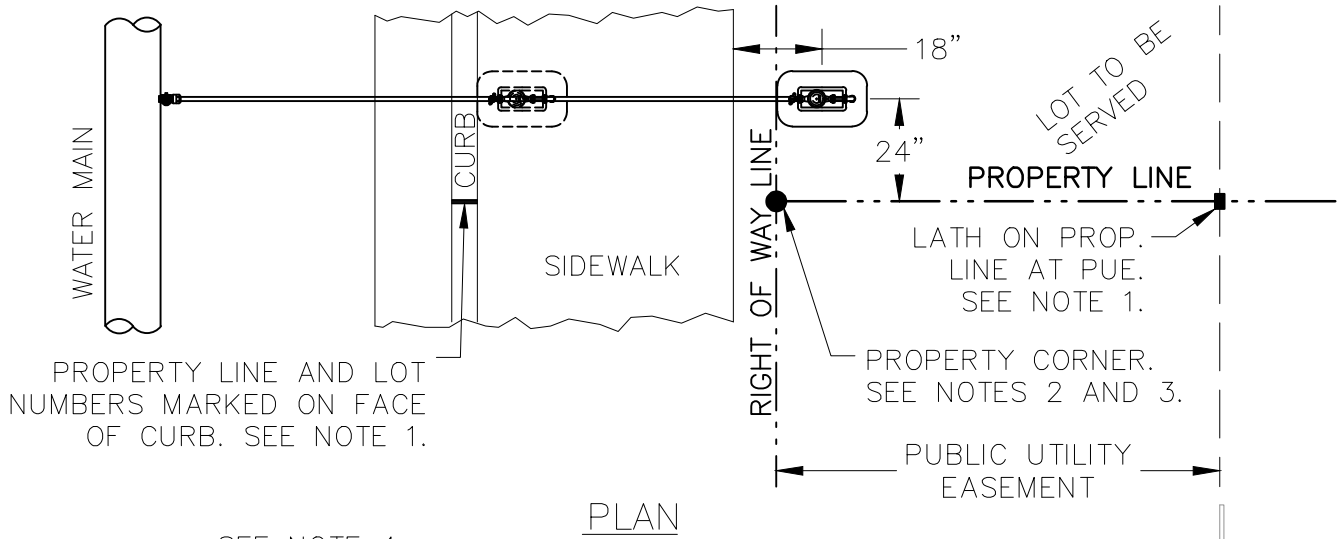
NOTES:

1. THE CLEAR ZONE PROHIBITS THE FOLLOWING:
 - VEHICLE PARKING
 - FENCES
 - TREES
 - LARGE BUSHES
 - RETAINING WALLS
 - ANYTHING ELSE THAT MAY INTERFERE WITH OPERATION OF THE FIRE HYDRANT.
2. THE CLEAR ZONE ALLOWS THE FOLLOWING:
 - LAWN GRASS
 - MULCH
 - BARK DUST
 - GROUND COVER
 - LOW PLANTINGS

HOWEVER, THE PROPERTY OWNERS SHOULD BE AWARE THE GROUND COVER COULD BE DAMAGED WHEN THE HYDRANT IS USED OR MAINTAINED.

3. THE CONTRACTOR SHALL INSTALL A BLUE REFLECTOR BUTTON FOR THE FIRE DEPARTMENT AFTER FINAL LIFT OF AC PAVEMENT IS PLACED.
4. WHERE ALLOWABLE WITHIN CITY OR COUNTY JURISDICTIONS, HYDRANTS MAY BE PLACED WITHIN THE SIDEWALK, IF THE SPACING REQUIREMENTS ARE MET AS SHOWN.

 TUALATIN VALLEY WATER DISTRICT	DESIGNED: MBA	FIRE HYDRANT CLEAR ZONE	DATE: 9/2020
	APPROVED: NWA		DETAIL
	SCALE: NONE		503



NOTES:

1. DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE INTERSECTION OF THE PROPERTY LINE AND THE PUBLIC UTILITY EASEMENT. DEVELOPER'S SURVEYOR SHALL ALSO MARK THE PROPERTY LINE AND LOT NUMBERS ON THE FACE OF CURB WITH WHITE PAINT.
2. IF PROPERTY CORNER MONUMENTS HAVE NOT BEEN SET AT THE TIME OF WATER SERVICE INSTALLATION, THE DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE PROPERTY CORNER LOCATION ON THE RIGHT-OF-WAY LINE.
3. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1-FT OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1-FT OF A SURVEY MONUMENT LOCATION.
4. METERS SHALL ONLY BE INSTALLED IN SIDEWALK IF APPROVED BY DISTRICT ENGINEER. SHOWN IN SIDEWALK FOR INFORMATION ONLY. BOXES SHALL BE INSPECTED BY DISTRICT PRIOR TO POURING CONCRETE SIDEWALK.
5. SEE SECTION 8.2. OF THE STANDARDS FOR BACKFLOW REQUIREMENTS.



TUALATIN VALLEY
WATER DISTRICT

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APPROVED: NWA

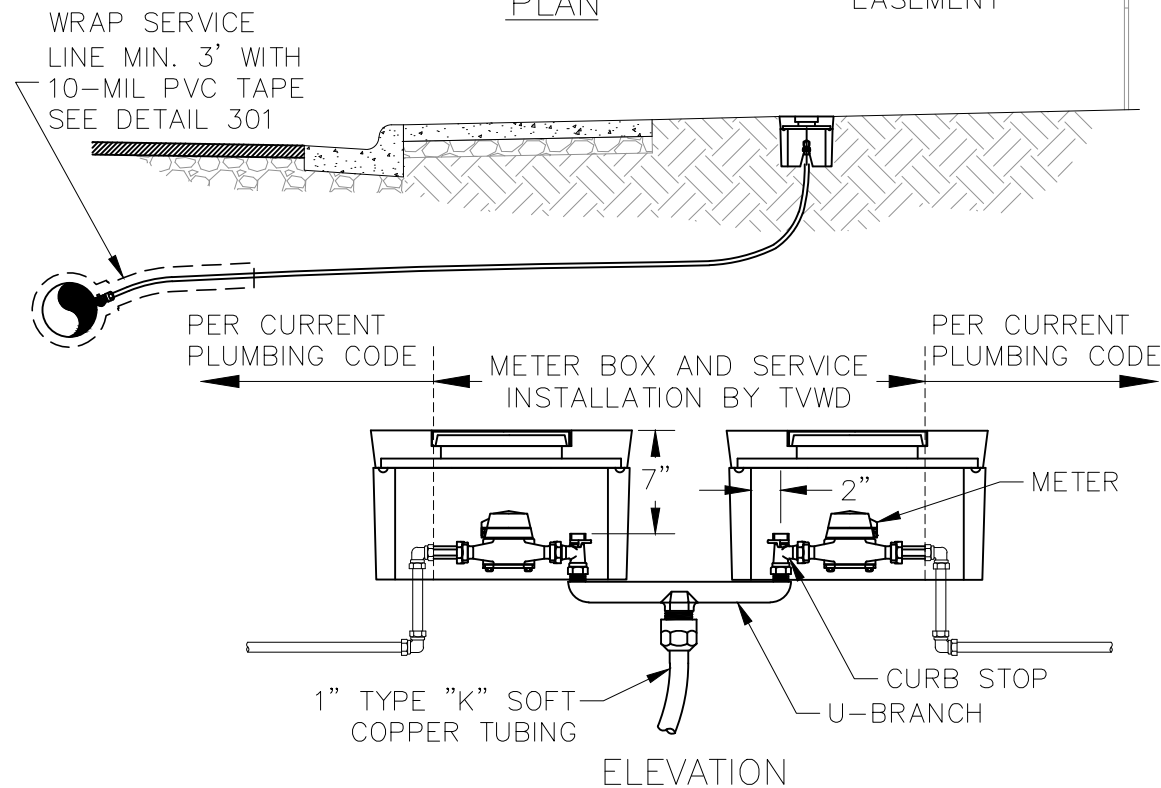
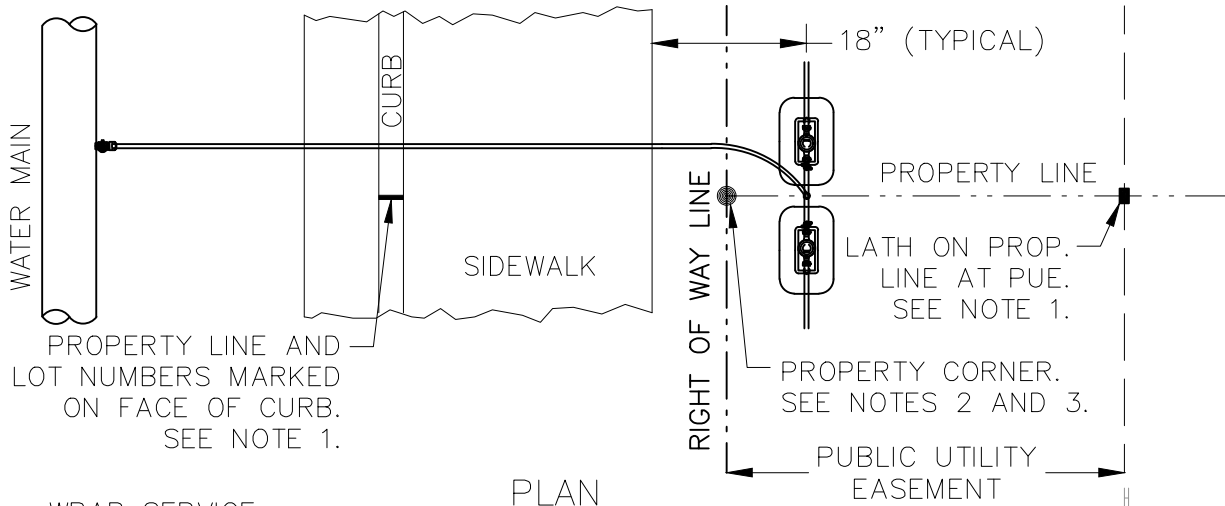
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**SINGLE WATER SERVICE
TYPICAL INSTALLATION
WITH CURBTIGHT
SIDEWALK**

DATE: 9/2020

DETAIL

601



NOTES:

1. DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE INTERSECTION OF THE PROPERTY LINE AND THE PUBLIC UTILITY EASEMENT. DEVELOPER'S SURVEYOR SHALL ALSO MARK THE PROPERTY LINE AND LOT NUMBERS ON THE FACE OF CURB WITH WHITE PAINT.
2. IF PROPERTY CORNER MONUMENTS HAVE NOT BEEN SET AT THE TIME OF WATER SERVICE INSTALLATION, THE DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE PROPERTY CORNER LOCATION ON THE RIGHT-OF-WAY LINE.
3. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1 FOOT OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1 FOOT OF A SURVEY MONUMENT LOCATION.
4. SEE SECTION 8.2 OF THE STANDARDS FOR BACKFLOW REQUIREMENTS.



TUALATIN VALLEY
WATER DISTRICT

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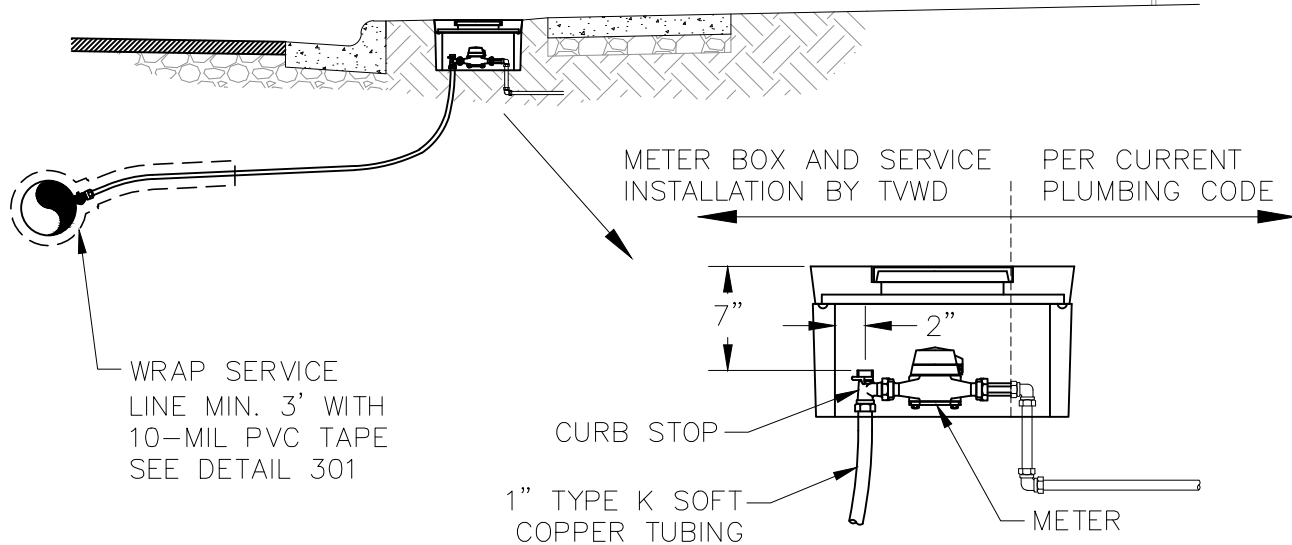
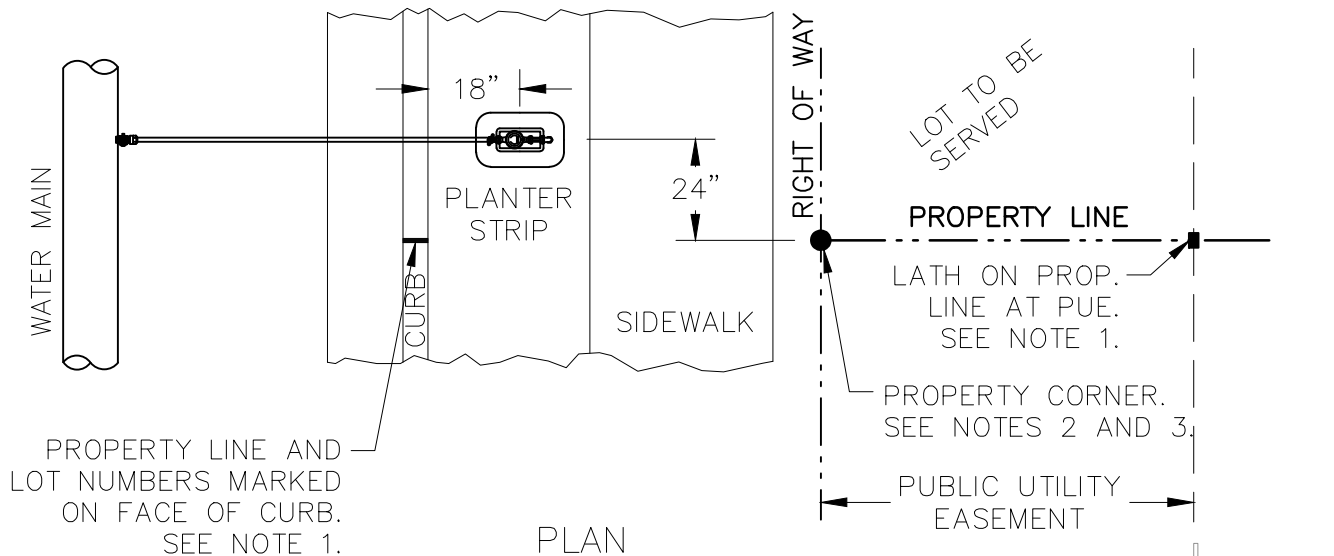
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**DUAL WATER SERVICE
TYPICAL INSTALLATION
WITH CURBTIGHT
SIDEWALK**

DATE: 9/2020

DETAIL

602



NOTES:

1. DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE INTERSECTION OF THE PROPERTY LINE AND THE PUBLIC UTILITY EASEMENT. DEVELOPER'S SURVEYOR SHALL ALSO MARK THE PROPERTY LINE AND LOT NUMBERS ON THE FACE OF CURB WITH WHITE PAINT.
2. IF PROPERTY CORNER MONUMENTS HAVE NOT BEEN SET AT THE TIME OF WATER SERVICE INSTALLATION, THE DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE PROPERTY CORNER LOCATION ON THE RIGHT-OF-WAY LINE.
3. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1-FT OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1-FT OF A SURVEY MONUMENT LOCATION.
4. SEE SECTION 8.2. OF THE STANDARDS FOR BACKFLOW REQUIREMENTS.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

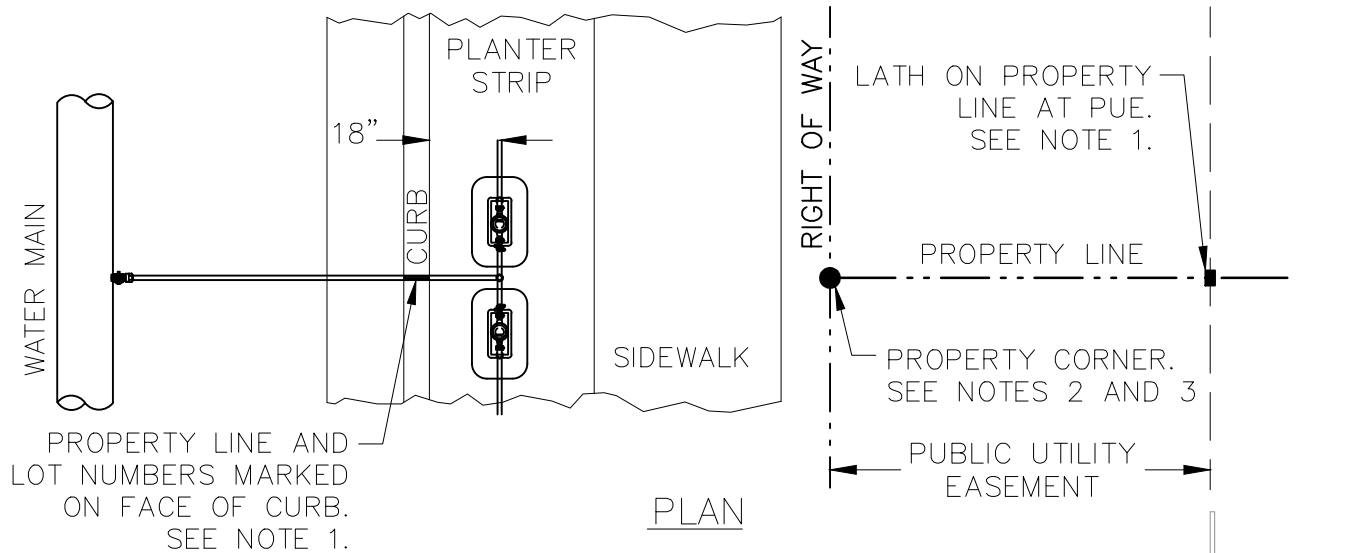
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**SINGLE WATER SERVICE
TYPICAL INSTALLATION
WITH PLANTER STRIP**

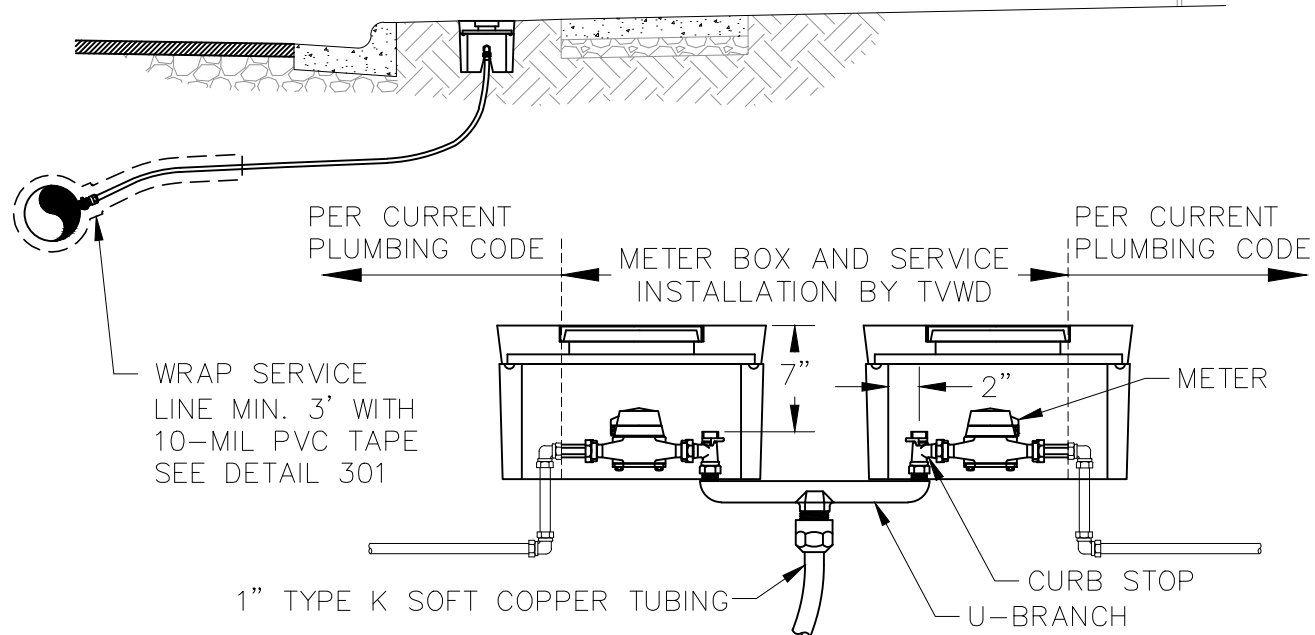
DATE: 9/2020

DETAIL

603




PLAN



ELEVATION

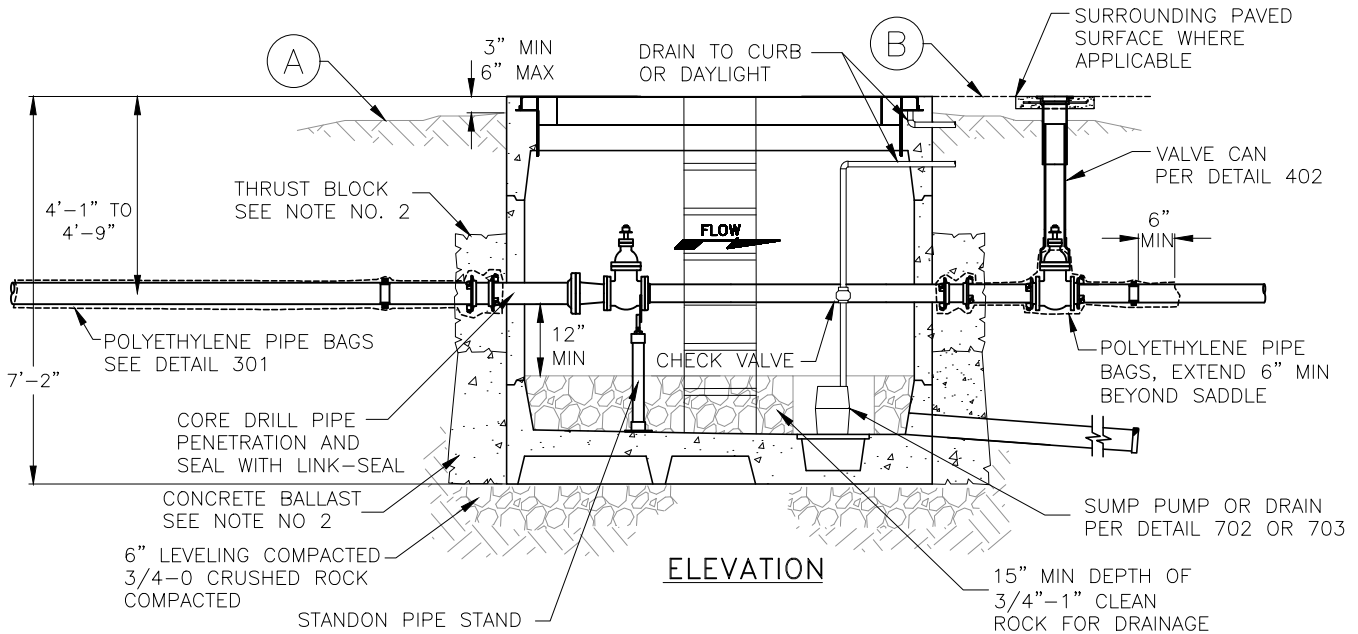
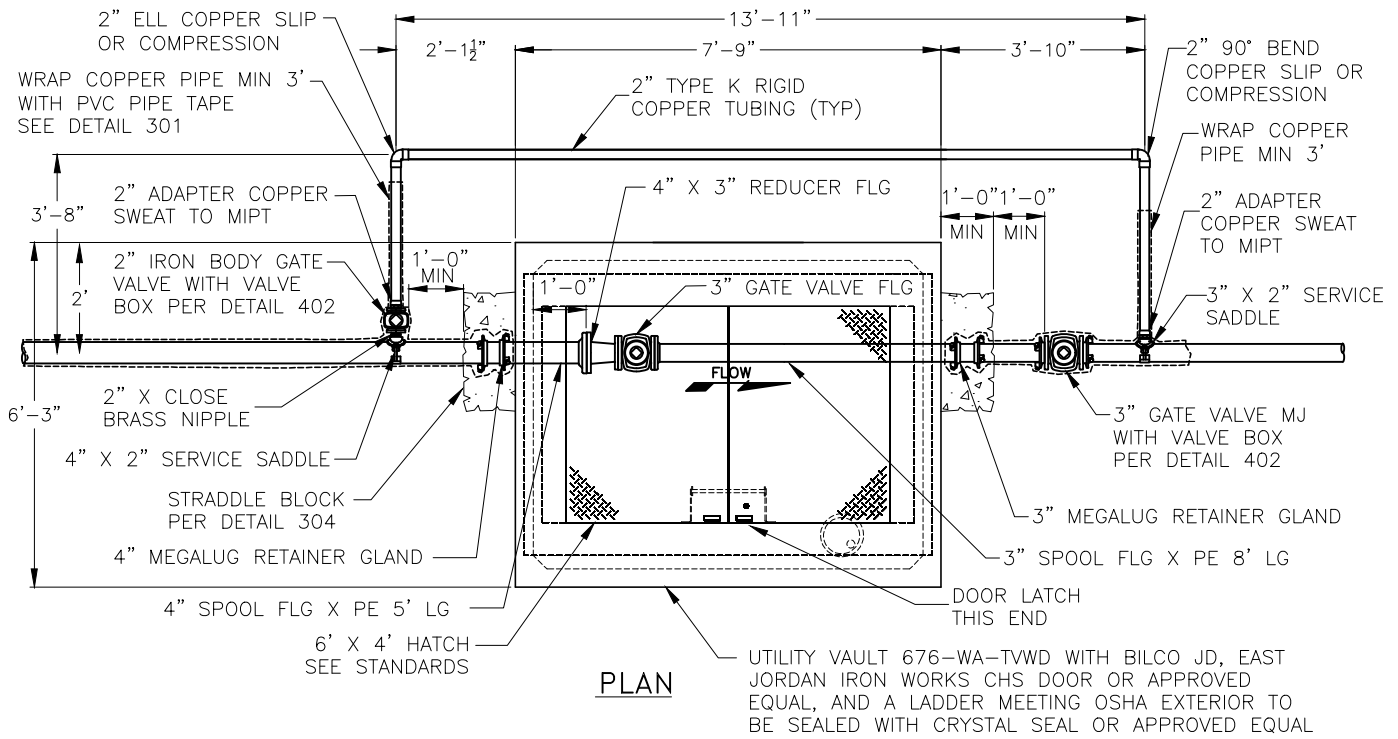
NOTES:

1. DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE INTERSECTION OF THE PROPERTY LINE AND THE PUBLIC UTILITY EASEMENT. DEVELOPER'S SURVEYOR SHALL ALSO MARK THE PROPERTY LINE AND LOT NUMBERS ON THE FACE OF CURB WITH WHITE PAINT.
2. IF PROPERTY CORNER MONUMENTS HAVE NOT BEEN SET AT THE TIME OF WATER SERVICE INSTALLATION, THE DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE PROPERTY CORNER LOCATION ON THE RIGHT-OF-WAY LINE.
3. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1-FT OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1-FT OF A SURVEY MONUMENT LOCATION.
4. SEE SECTION 8.2. OF THE STANDARDS FOR BACKFLOW REQUIREMENTS.

 TUALATIN VALLEY WATER DISTRICT	DESIGNED: MBA	DUAL WATER SERVICE TYPICAL INSTALLATION WITH PLANTER STRIP	DATE: 9/2020
	APPROVED: NWA		DETAIL
	SCALE: NONE		604

STREET SIDE

CUSTOMER SIDE



NOTES:

1. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT.
2. CONTRACTOR TO INSTALL CONCRETE BALLAST 3 CU YD MIN AROUND BASE OF VAULT IN AREAS WHERE FLOODING OR HIGH GROUND WATER EXISTS.
3. ALL MATERIALS SHALL BE AS NAMED OR EQUAL. SUBMIT ALTERNATES FOR APPROVAL.
4. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1-FEET OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1-FEET OF A SURVEY MONUMENT LOCATION.

KEYNOTES:

- A. IN LANDSCAPING: FINISH GRADE SHALL SLOPE AWAY FROM VAULT LID.
- B. IN PAVEMENT: FINISH GRADE SHALL BE FLUSH WITH SURROUNDING PAVEMENT.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

SCALE: NONE

**3" METER
INSTALLATION**

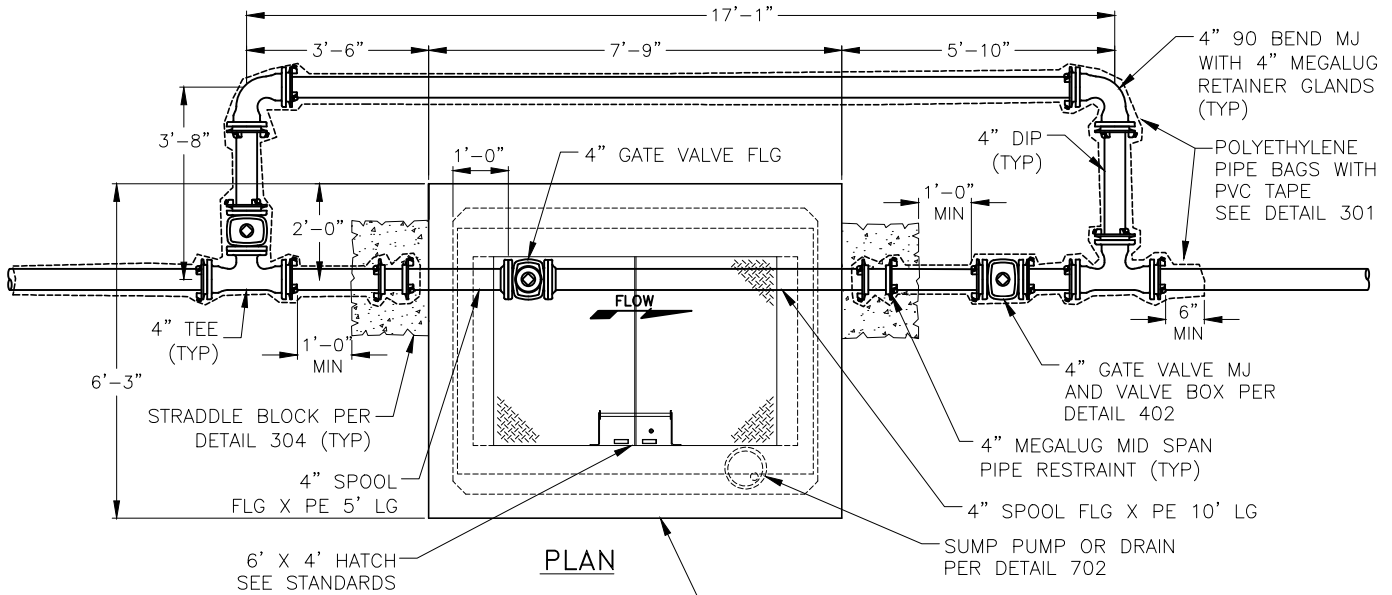
DATE: 9/2020

DETAIL

606

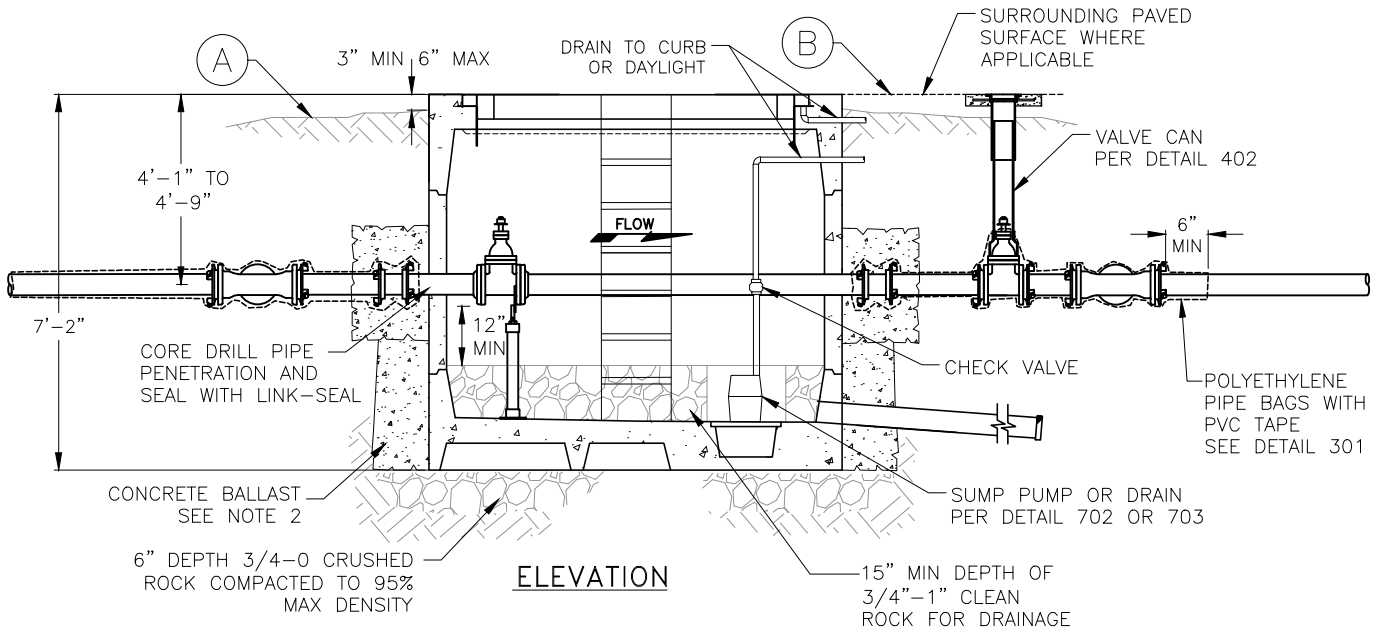
STREET SIDE

CUSTOMER SIDE



PLAN

UTILITY VAULT 676-WA WITH BILCO JD, EAST JORDAN CHS DOOR OR APPROVED EQUAL, AND A LADDER MEETING OSHA REQUIREMENTS (SEE DETAIL 701). SEE NOTE 1. EXTERIOR TO BE SEALED WITH CRYSTAL SEAL OR APPROVED EQUAL.



ELEVATION

NOTES:

1. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT.
2. CONTRACTOR TO INSTALL CONCRETE BALLAST 3 CU YD MIN AROUND BASE OF VAULT IN AREAS WHERE FLOODING OR HIGH GROUND WATER EXISTS.
3. ALL MATERIALS SHALL BE AS NAMED OR EQUAL. SUBMIT ALTERNATES FOR APPROVAL.
4. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1-FEET OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1-FEET OF A SURVEY MONUMENT LOCATION.

KEYNOTES:

- A. IN LANDSCAPING: FINISH GRADE SHALL SLOPE AWAY FROM VAULT LID.
- B. IN PAVEMENT: FINISH GRADE SHALL BE FLUSH WITH SURROUNDING PAVEMENT.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

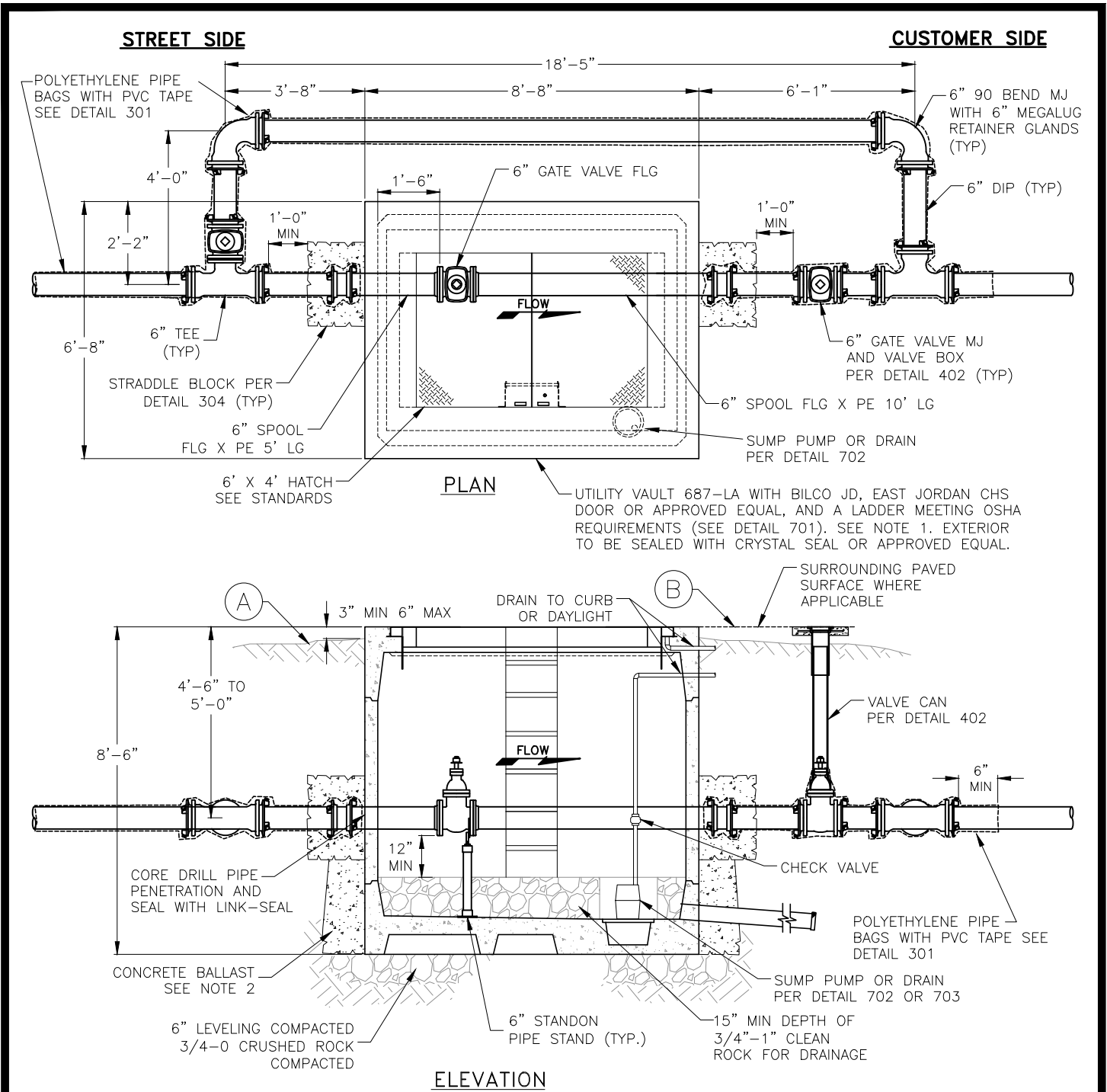
SCALE: NONE

**4" METER
INSTALLATION**

DATE: 9/2020

DETAIL

607



NOTES:

1. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT.
2. CONTRACTOR TO INSTALL CONCRETE BALLAST 3 CU YD MIN AROUND BASE OF VAULT IN AREAS WHERE FLOODING OR HIGH GROUND WATER EXISTS.
3. ALL MATERIALS SHALL BE AS NAMED OR EQUAL. SUBMIT ALTERNATES FOR APPROVAL.
4. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1-FT. OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1-FT. OF A SURVEY MONUMENT LOCATION.

KEYNOTES:

- A. IN LANDSCAPING: FINISH GRADE SHALL SLOPE AWAY FROM VAULT LID.
- B. IN PAVEMENT: FINISH GRADE SHALL BE FLUSH WITH SURROUNDING PAVEMENT.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

SCALE: NONE

**6" METER
INSTALLATION**

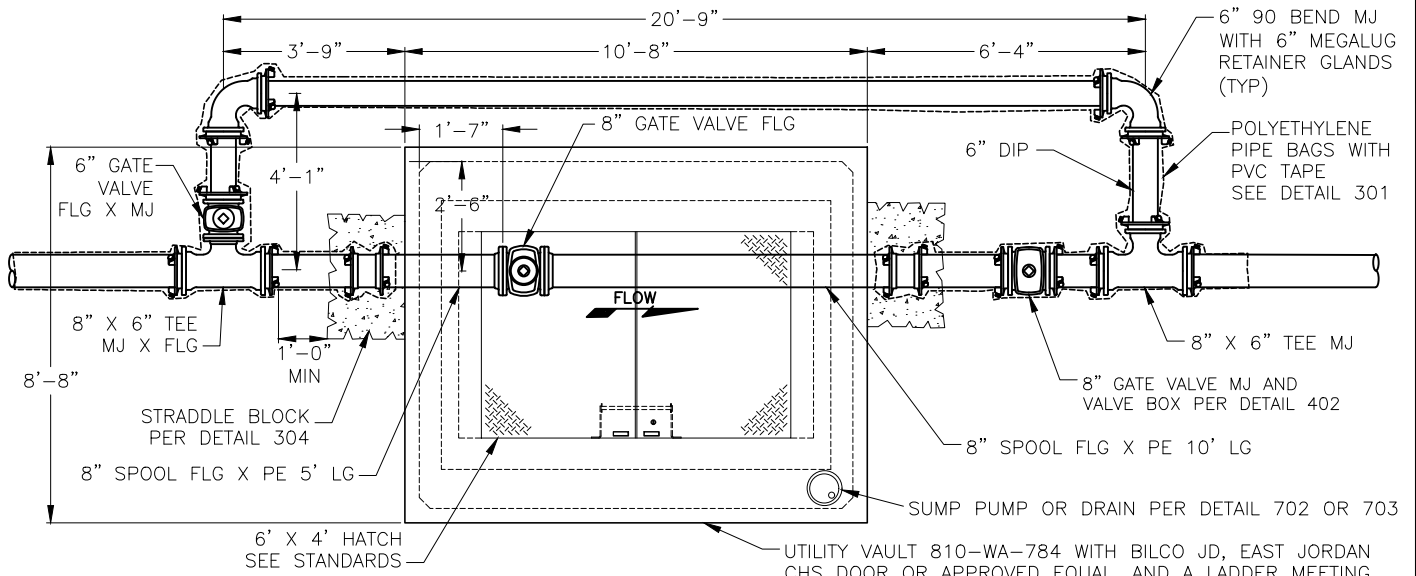
DATE: 9/2020

DETAIL

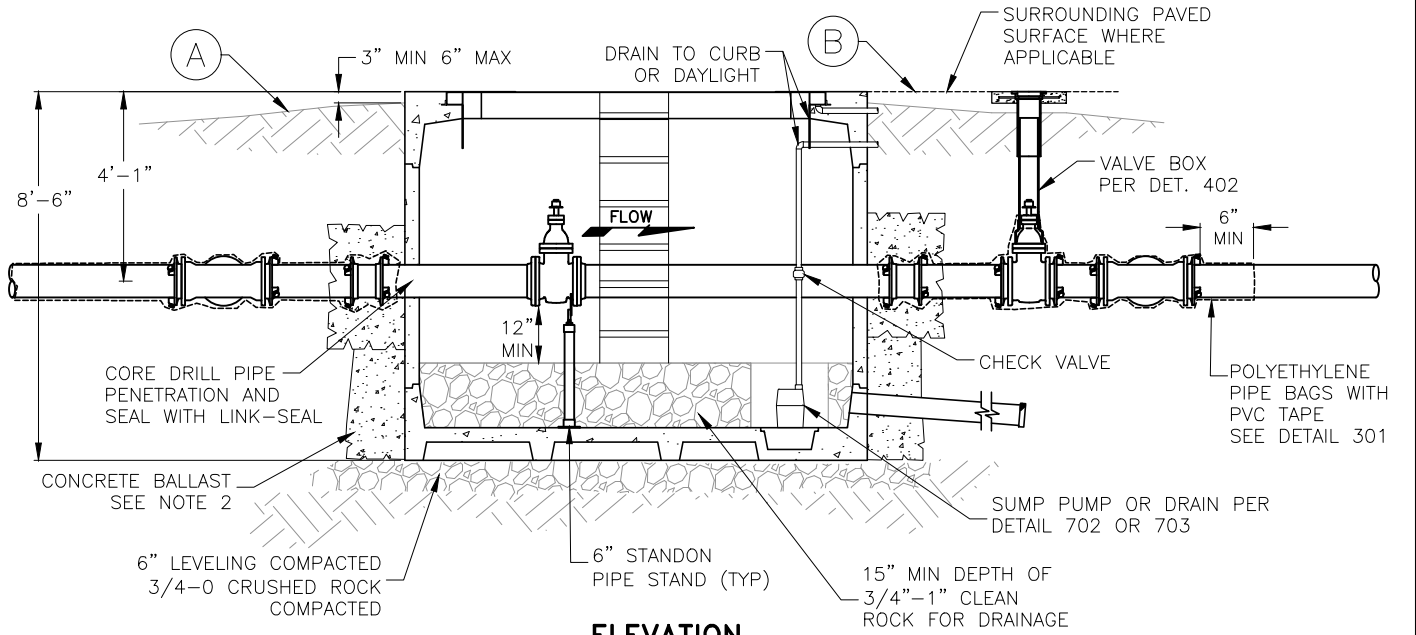
608

STREET SIDE

CUSTOMER SIDE



PLAN



ELEVATION

NOTES:

1. CONTRACTOR SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT.
2. CONTRACTOR TO INSTALL CONCRETE BALLAST 3 CU YD MIN AROUND BASE OF VAULT IN AREAS WHERE FLOODING OR HIGH GROUND WATER EXISTS.
3. ALL MATERIALS SHALL BE AS NAMED OR EQUAL. SUBMIT ALTERNATES FOR APPROVAL.
4. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1-FT. OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1-FT. OF A SURVEY MONUMENT LOCATION.
5. FOR FIRE MAINS, USE OSY VALVE.

KEYNOTES:

- A. IN LANDSCAPING: FINISH GRADE SHALL SLOPE AWAY FROM VAULT LID.
- B. IN PAVEMENT: FINISH GRADE SHALL BE FLUSH WITH SURROUNDING PAVEMENT.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

SCALE: NONE

**8" METER
INSTALLATION**

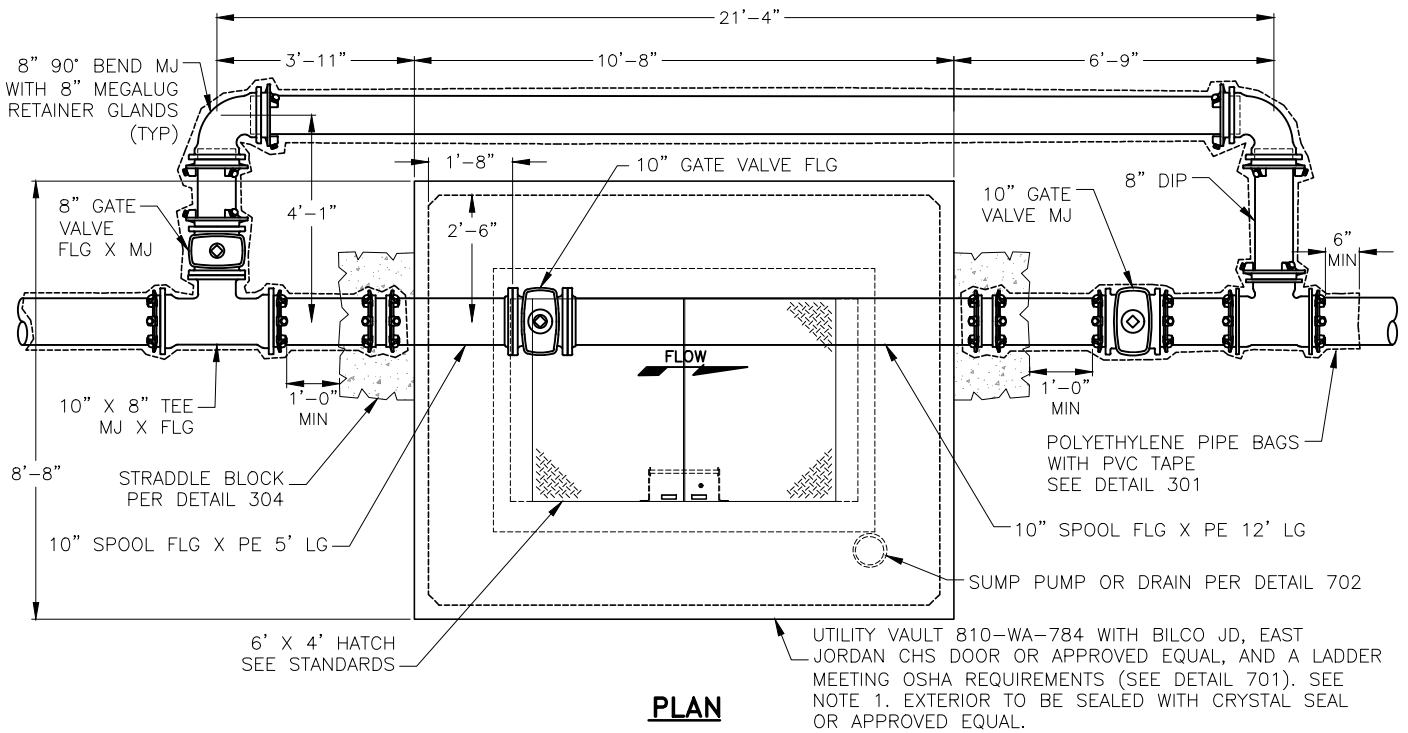
DATE: 9/2020

DETAIL

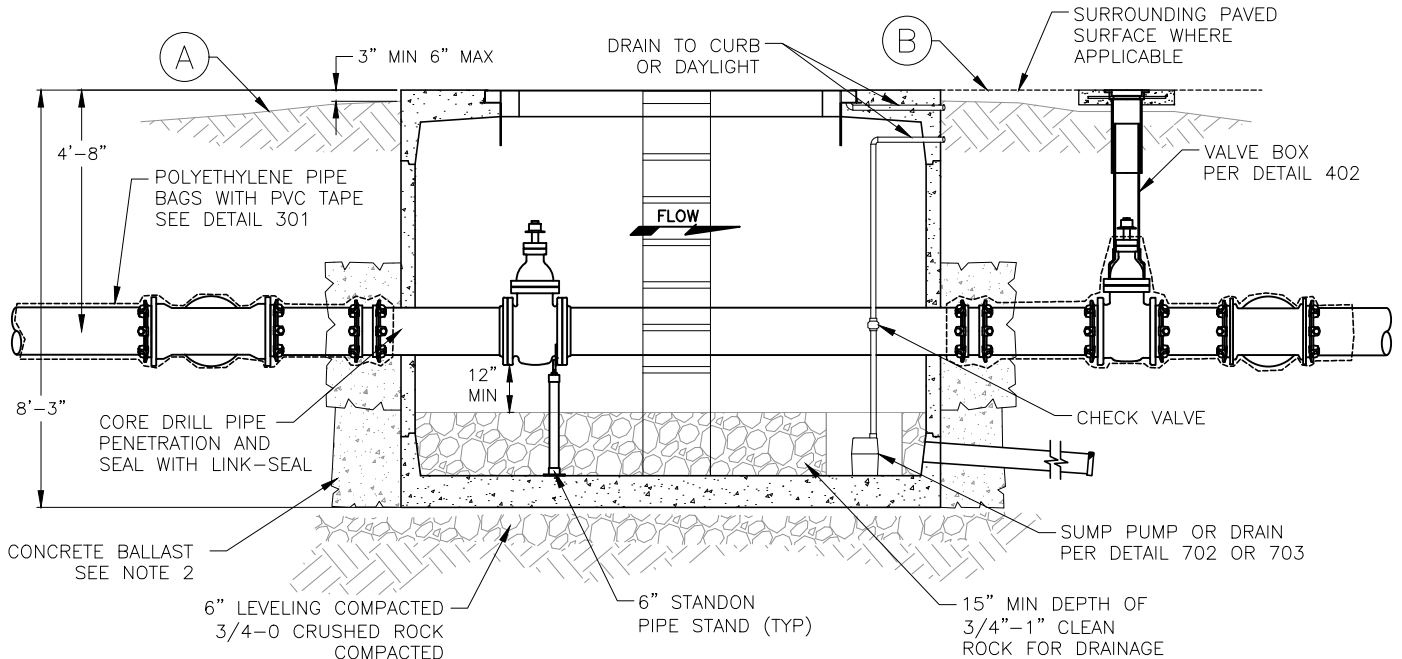
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STREET SIDE

CUSTOMER SIDE



PLAN



ELEVATION

NOTES:

1. CONTRACTOR SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT.
2. CONTRACTOR TO INSTALL CONCRETE BALLAST 3 CU YD MIN AROUND BASE OF VAULT IN AREAS WHERE FLOODING OR HIGH GROUND WATER EXISTS.
3. ALL MATERIALS SHALL BE AS NAMED OR EQUAL. SUBMIT ALTERNATES FOR APPROVAL.
4. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1-FT. OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1-FT. OF A SURVEY MONUMENT LOCATION.

KEYNOTES:

- A. IN LANDSCAPING: FINISH GRADE SHALL SLOPE AWAY FROM VAULT LID.
- B. IN PAVEMENT: FINISH GRADE SHALL BE FLUSH WITH SURROUNDING PAVEMENT.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

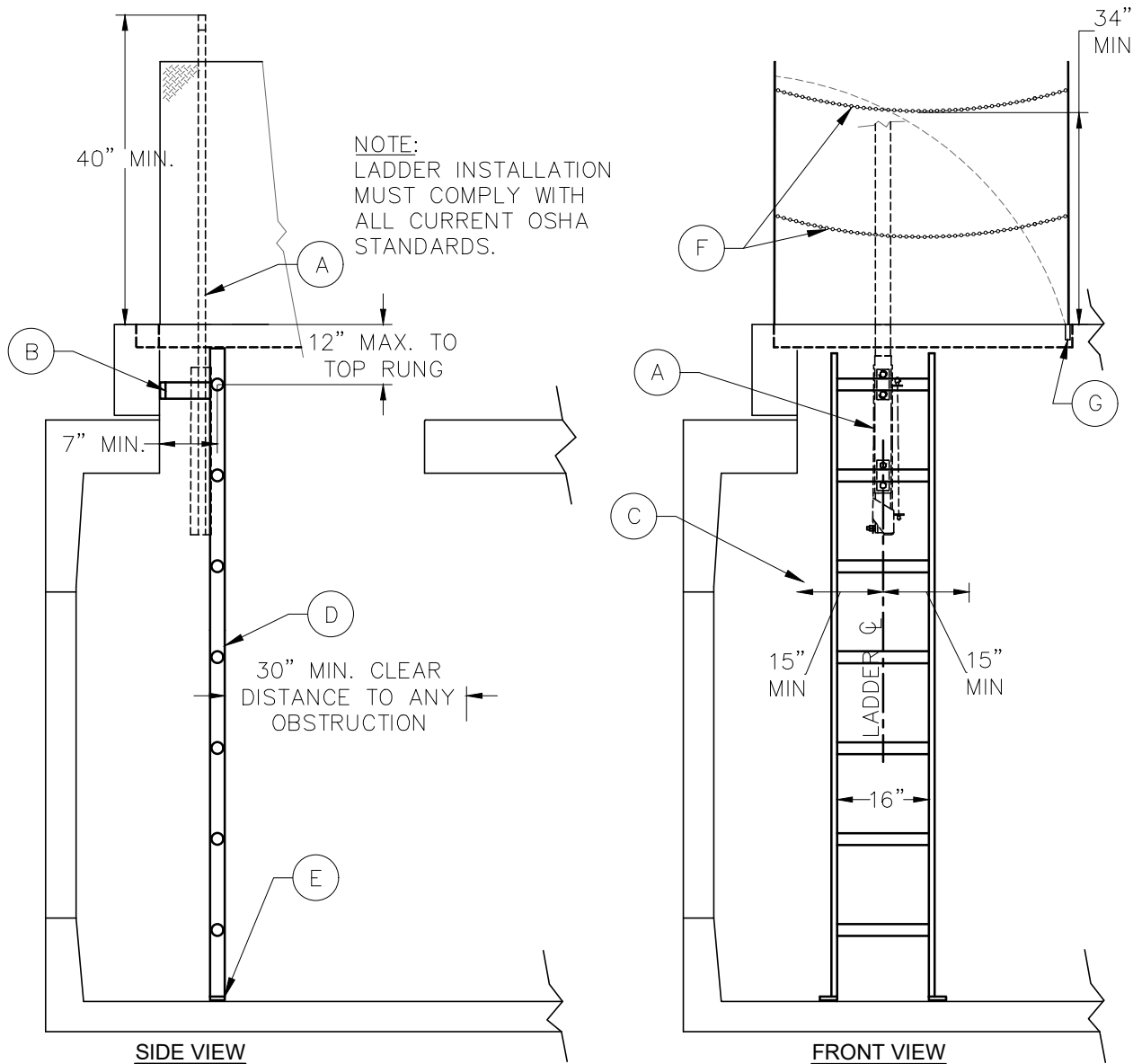
SCALE: NONE

**10" METER
INSTALLATION**

DATE: 9/2020

DETAIL

610



KEYNOTES:

- A. LADDER EXTENSION SHALL BE ALUMINUM AND EXTEND 40" ABOVE THE TOP OF THE VAULT OPENING. LADDER UP POST SHALL BE BILCO TYPE LU-4 OR APPROVED EQUAL.
- B. ATTACH LADDER SUPPORT TO INSIDE FACE OF VAULT COVER OPENING WITH STAINLESS STEEL HARDWARE AS SHOWN. ϕ OF RUNG MUST BE SET 7" FROM FACE OF SURFACE BEHIND RUNG. LADDER SHALL BE ON THE SIDE ADJACENT TO THE DOOR HINGE.
- C. PROVIDE 15" MINIMUM LATERAL CLEARANCE ON EACH SIDE OF LADDER ϕ .
- D. LADDER SHALL MEET THE REQUIREMENTS OF OSHA AND SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
- E. LADDER SHALL BE ATTACHED TO FLOOR OF VAULT WITH STAINLESS STEEL HARDWARE PER THE MANUFACTURERS RECOMMENDATIONS.
- F. STAINLESS STEEL SAFETY CHAINS SHALL BE ATTACHED TO LID. CHAIN POST MOUNTS ARE REQUIRED ON SINGLE DOOR VAULTS. CHAINS SHALL BE A MINIMUM OF 34" HIGH AT LOWEST POINT INCLUDING SAG, MAXIMUM OF 39", AND SHALL HAVE MID-SPAN CHAIN. CHAINS SHALL BE DETACHABLE ON LADDER SIDE OF VAULT AND POWDER COATED ORANGE FOR VISUAL AWARENESS.
- G. SINGLE DOOR VAULT FRAMES SHALL HAVE 2 POST MOUNTS ON THE INTERIOR OF THE FRAME FOR POST MOUNTED CHAINS.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

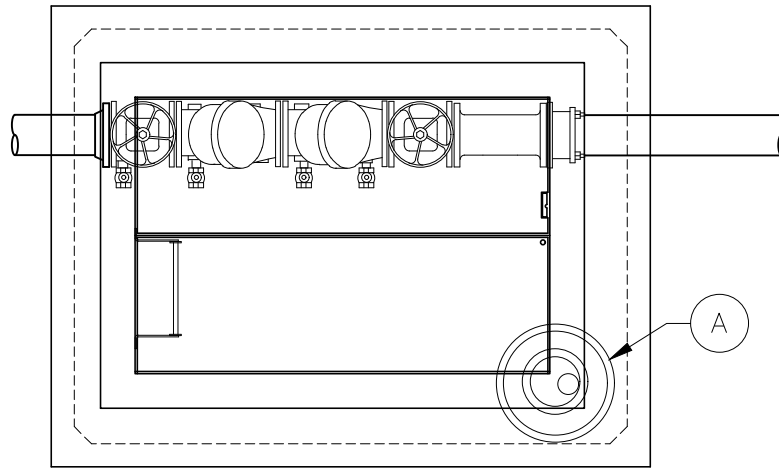
SCALE: NONE

**VAULT LADDER
INSTALLATION**

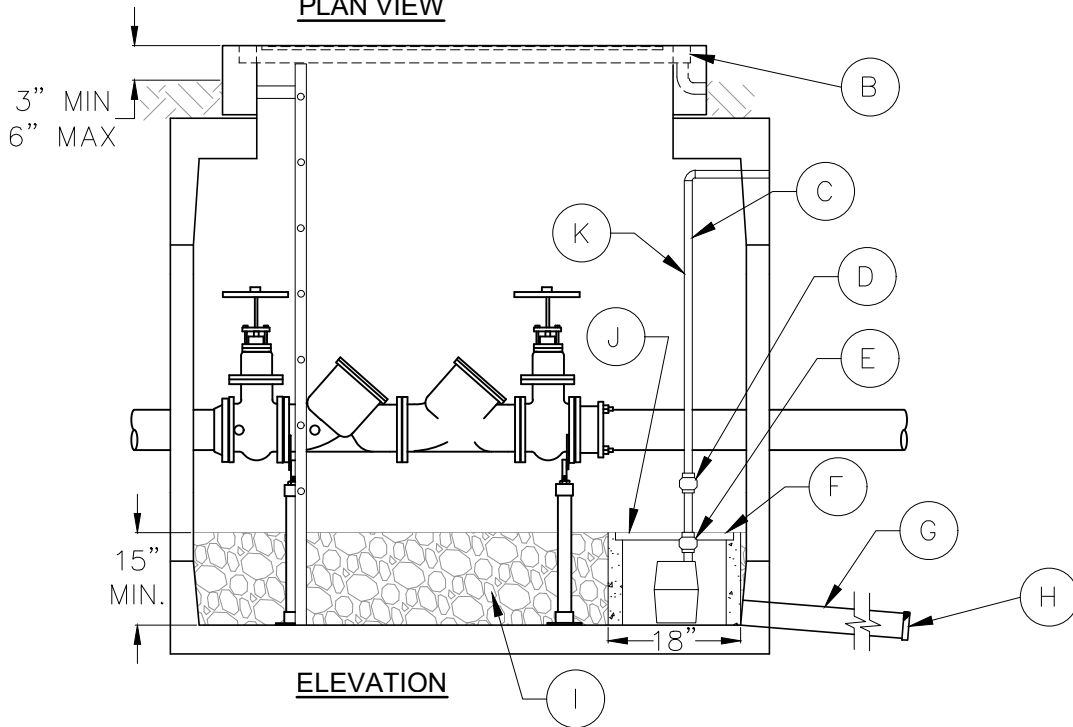
DATE: 9/2020

DETAIL

701



PLAN VIEW



ELEVATION

KEYNOTES:

- A. LOCATE SUMP PUMP AWAY FROM PIPING AND DEVICES.
- B. DRAIN LID CHANNEL TO DAYLIGHT.
- C. 2" SCH 40 PVC SUMP PUMP DISCHARGE PIPING TO DISCHARGE LOCATION PER APPROVED DRAINAGE PLAN.
- D. ISOLATION BALL VALVE.
- E. INLINE CHECK VALVE.
- F. 18" T & G OR B & S ROUND CATCH BASIN WITH FABRICATED GRATE, GALVANIZED AFTER MANUFACTURING. PROVIDE 6 - 1" HOLES SPACED AROUND BASIN 3" ABOVE FLOOR OF VAULT. WRAP WITH FILTER FABRIC TO KEEP GRAVEL OUT OF SUMP.
- G. 3" DRAIN TO CURB OR OTHER LOCATION WITH DISTRICT APPROVAL. NOT APPLICABLE IF SUMP PUMP IS INSTALLED.
- H. RODENT SCREEN. NOT APPLICABLE IF SUMP PUMP IS INSTALLED.
- I. 3/4"-1" CRUSHED ROCK FILL, NO FINES. CONTRACTOR SHALL PROTECT ALL PIPE, VALVES, METERS, DEVICES, ETC. WHILE PLACING ROCK.
- J. MANUFACTURE GRATE WITH CUTOUT FOR DISCHARGE PIPING. GRATE SHALL BE REMOVABLE WITHOUT DISASSEMBLY OF DISCHARGE PIPING.
- K. PROVIDE PERMANENT POWER SOURCE PER LOCAL ELECTRICAL CODES FOR SUMP PUMP. SECURE POWER CORD TO SUMP PUMP DISCHARGE PIPING WITH NYLON CABLE TIES.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

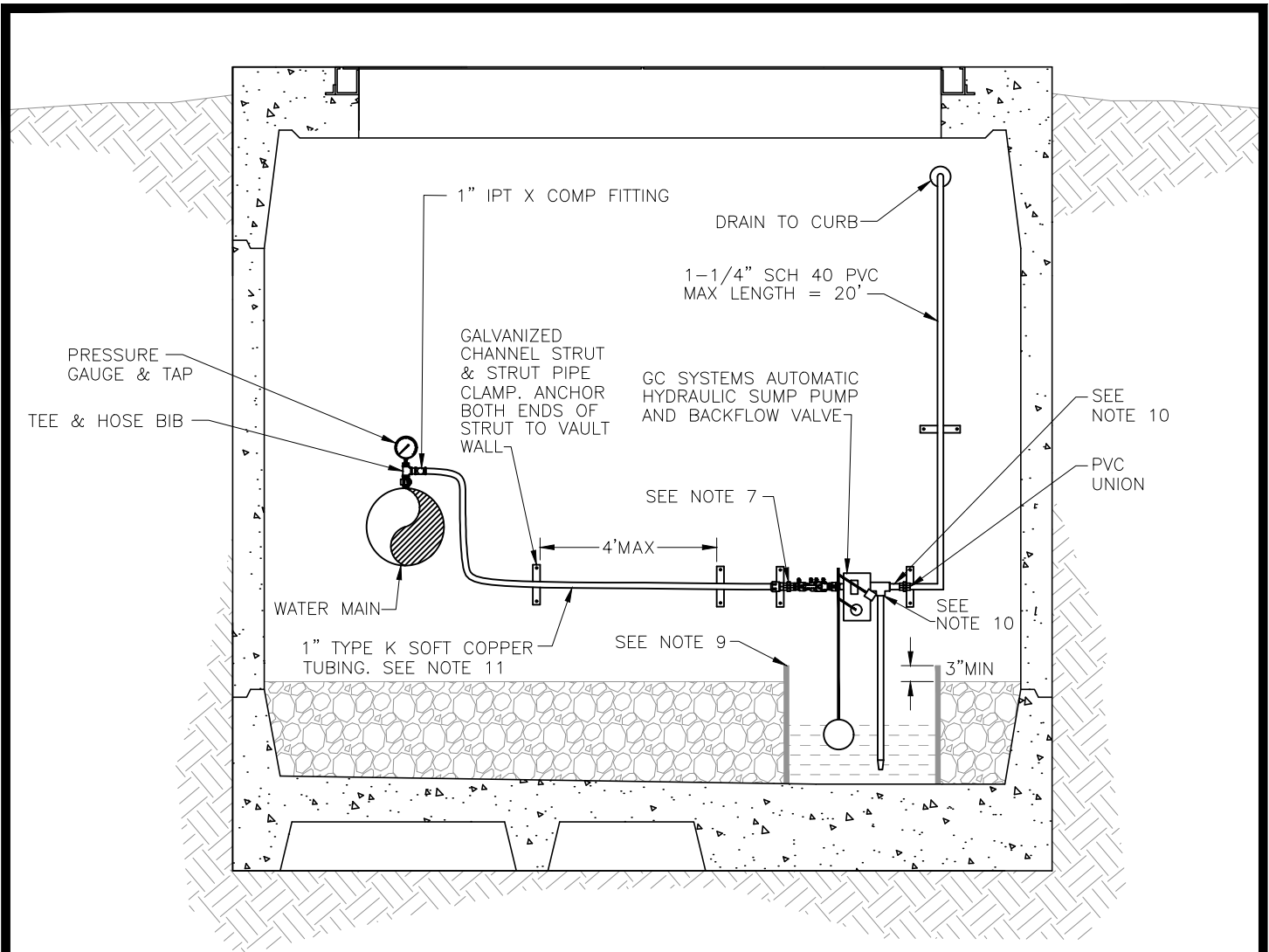
SCALE: NONE

**ELECTRIC
SUMP PUMP
INSTALLATION**

DATE: 9/2020

DETAIL

702



KEYNOTES:

A. SHALL BE INSTALLED IN METER AND REGULATOR VAULTS ONLY

NOTES:

1. FOLLOW MANUFACTURERS INSTRUCTIONS FOR INSTALLATION OF SUMP PUMP ASSEMBLY.
2. INSTALL CHANNEL STRUT WITHIN 6" OF EACH END OF HYDRAULIC SUMP PUMP ASSEMBLY. STACK AND BOLT CHANNEL STRUT, PER STRUT MANUFACTURERS RECOMMENDATION, TO SPACE HYDRAULIC SUMP PUMP ASSEMBLY OFF OF VAULT WALL TO ALLOW 2" CLEARANCE IN ALL DIRECTIONS AROUND FLOAT.
3. LOCATE SUMP PUMP SUCTION INLET 3"-6" FROM VAULT FLOOR.
4. ALLOW ADEQUATE ROOM FOR TESTING OF DOUBLE CHECK VALVE ASSEMBLY.
5. THIS DETAIL IS SCHEMATIC IN NATURE, ACTUAL PIPING CONFIGURATION MUST BE APPROVED BY TVWD INSPECTION STAFF PRIOR TO CONSTRUCTION.
6. TAP SHALL BE UPSTREAM OF METER.
7. CONNECT SUMP PUMP INSTALL 1" COPPER TO MIPT, 1" UNION, 1" X 3/4" BRASS BUSHING, AND 3/4" CLOSE BRASS NIPPLE.
8. REFER TO DETAIL 702 FOR ADDITIONAL INSTALLATION DETAILS NOT SHOWN.
9. 18" MIN. DIAMETER PVC PIPE, PERFORATE FIRST 1'-0" AND WRAP PVC PIPE WITH FILTER FABRIC TO PREVENT INTRUSION OF ROCKS.
10. PROVIDE SCHEDULE 40 PVC PIPING AND FITTINGS TO CONNECT BOTH THE SUCTION AND OUTLET OF THE SUMP PUMP.
11. BENDING OF COPPER TUBING IS PERMITTED. KINKS IN TUBING ARE NOT ALLOWED.



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA

APPROVED: NWA

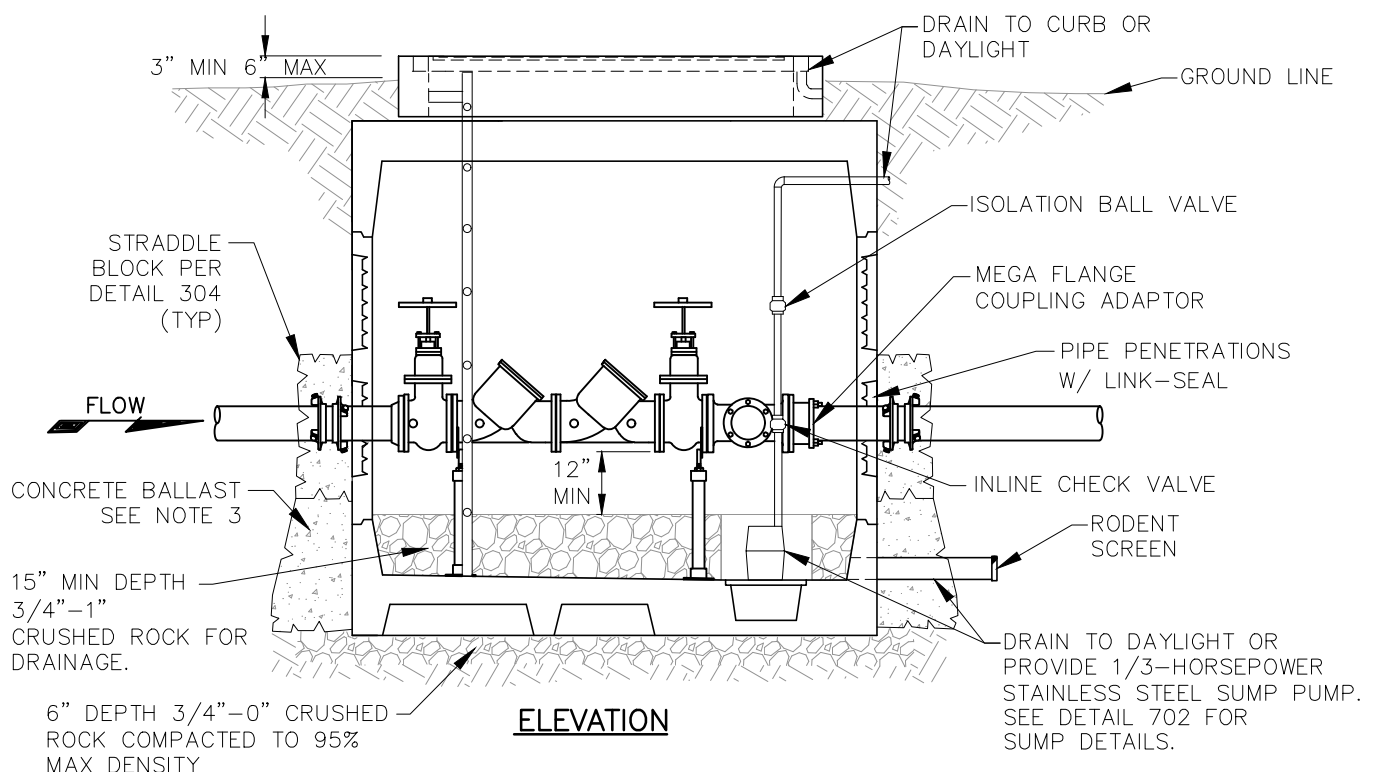
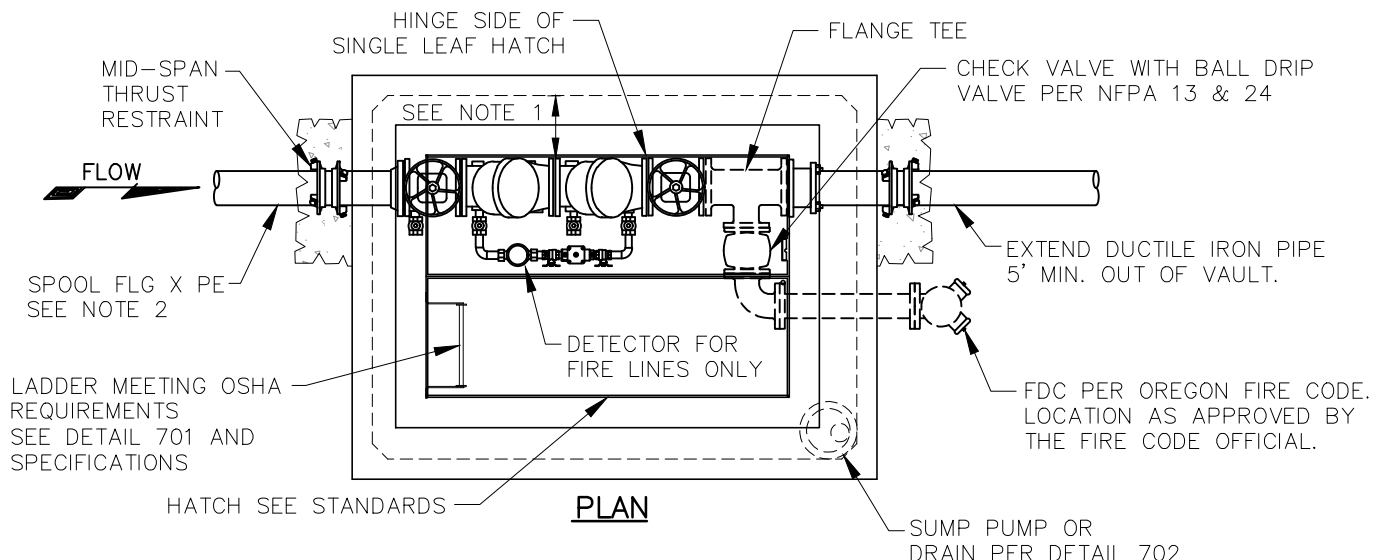
SCALE: NONE

HYDRAULIC SUMP PUMP

DATE: 9/2020

DETAIL

703



KEYNOTES:

- A. ONLY ELECTRIC SUMP PUMPS ALLOWED IN BACKFLOW VAULTS

NOTES:

1. REFER TO OAR FOR ALL CLEARANCES AND TO OHA FOR LIST OF APPROVED ASSEMBLIES
2. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT
3. CONTRACTOR TO INSTALL CONCRETE BALLAST 3 CU YDS MINIMUM AROUND BASE OF VAULT WHERE FLOODING OR HIGH GROUND WATER EXISTS
4. THRUST BLOCK 1'-0" MINIMUM THICKNESS
5. FOR USE ON FIRE SERVICE LINE

SIZE	UTILITY VAULT *	BILCO DOOR *
3	660-WA	J-5ALH20
4	577-WA	J-5ALH20
6	676-WA	J-5ALH20
8	687-WA	JD-3ALH20
10	5106-LA	JD-3ALH20

* "OR EQUAL"



TUALATIN VALLEY
WATER DISTRICT

DESIGNED: MBA
APPROVED: NWA
SCALE: NONE

DOUBLE CHECK VALVE ASSEMBLY
OR DOUBLE CHECK DETECTOR ASSEMBLY

DATE: 9/2020

DETAIL

801