

**GENERAL NOTES:**

1. Any changes from approved plans must be submitted to EPCOR for written approval prior to installation.
2. Contractor shall keep a clean, current set of contract drawings as a record of the location of all work completed as part of the project. Revisions, additions, and deletions shall be annotated on the record set of drawings in Red. Contractor shall ensure that survey-grade GPS equipment is used to record northing, easting, and elevation data for certain buried appurtenances. For water mains, appurtenances to be located include valves, crosses, tees, bends, reducers, and other fittings as required by the construction inspector. For sewer mains, appurtenances include the rim and invert elevations of manholes, clean-outs and other features as required. GPS coordinates will utilize the North American Datum (NAD) 1983, State Plane Arizona Central Zone in Maricopa and Santa Cruz counties, and State Plane Arizona West Zone in Mohave County. All units will be in US feet. Prior to completion of the work, provide the red-lined drawings to the Engineer of record for preparation of the project Record Drawings. Final completion will not be made until the Engineer of Record receives satisfactory red-lined drawings.
3. Contractor shall notify EPCOR Construction Inspections Department 48 hours in advance of any construction. Use the Contact List in EPCOR's Developer Guide to schedule inspection (EPCOR general phone number is 623-445-2400). When appointments for inspection are arranged at least 48 hours in advance, the inspection/test will be conducted as scheduled, otherwise the request will be scheduled based on availability.
4. Contractor shall be responsible for obtaining required permits and inspections from appropriate governmental agencies for all work in public rights-of-way (Maricopa County Department of Transportation, City Engineering Department, etc.). Inspections by EPCOR do not relieve contractor of responsibility to obtain required inspections from other interested governmental agencies (Building Safety, Fire District, etc.).
5. All work and testing shall be in accordance with Maricopa Association of Governments (MAG) Standard Specifications and Details unless otherwise stated on plans.
6. All potable waterlines and fittings shall have NSF-PW seal. All materials and products used in the potable water system shall conform to NSF Standards 60 and 61 in accordance with AAC R18-4-213. All materials shall be lead-free as defined in AAC R18-4-101 and R18-4-107.
7. Pipe Separation:
  - a. Separation between water and sewer lines will be a minimum of 6 feet from outside edge to outside edge of pipe. Two feet separation is required between water lines, storm drains, and dry utilities.
  - b. Vertical and Horizontal separation of pipes and pipe crossings of varying degrees of water quality shall be in accordance with State & local government requirements.
8. Dip Section: All dip sections shall be constructed of restrained ductile iron pipe (DIP) per EPCOR's STD. DET. 370-1. All dip sections shall be joint restrained DIP with polyethylene wrap for the entire length per MAG SEC. 610.6. Joint restrained lengths will follow MAG STD. DET. 303-1 and 303-2. Anchor blocks/thrust blocks must be installed for vertical bends per MAG STD. DET. 381. Air/Vacuum release valves are required at all highpoints and at vertical realignments of the water line.
9. Concrete Encasement: All water and sewer encasements shall follow MAG STD. DET. 404-1. When a water line must be constructed under a sewer or reclaimed water line, the water line must be a minimum of 2' below the sewer or reclaimed water line and extra protection is required. Protection for the sewer main should be constructed with mechanical joint or restrained joint ductile iron pipe for a distance of ten feet on both sides of the water main. A full length of DIP will be centered over/under the water main. When DIP is not used for the sewer main, both the water and sewer lines will be encased in concrete for a length of 10' on both sides of the crossing, per MAG STD. DET. 404-2. Refer to MAG STD. DET. 404-1 regarding force mains. All encasements require rebar and class "C" concrete.
10. Gate valves shall be resilient seated in accordance with EPCOR's "Water Material Specifications" and MAG SEC. 630.3.
11. Valve supports shall be in accordance with MAG STD. DET. 301.
12. Valve boxes shall be in accordance with MAG STD. DET. 391-1, type C. Note: Valve box lids used in City of Surprise shall be Bingham & Taylor, Model # CUL5LHVTSK4WCL35
13. Water Valve Debris Caps: Debris caps are required when water valves are constructed within 2 feet of the edge of gutter, in areas that are unpaved, and areas prone to flooding. Valves should be set 2-tenths above finish grade in all unpaved areas. Concrete collar with carsonite marker is required on all valve locations outside of right-of-way.
14. Concrete thrust blocks shall be in accordance with MAG STD. DET. 380. Thrust blocks are NOT allowed in Right-of-ways (ROWs). Restrained joints per MAG STD. DET. 303-1 & 2 shall be used in ROWs in place of concrete thrust blocks. 90-degree fittings are NOT allowed in ROW's, but may be used in other areas as approved by EPCOR.
15. Field lock gaskets are not allowed.
16. Water services 2 inches and smaller shall be in accordance with EPCOR STD. DET. 342-2.
17. Fire hydrants located on "Dead End" water mains shall have a blow-off, in accordance with EPCOR STD. DET. 390-1, installed at the end of the water main.
18. Hydrant coating: "Safety Yellow". Complete hydrant preparation prior to inspection for painting. Inspection is also required after painting for contractor to receive final acceptance.
19. Pumper nozzle shall be oriented to provide best accessibility for fire truck. All hydrant ports must be lubricated with a food-grade lubricant, or NSF 60 product.
20. Fire hydrants shall be in accordance with EPCOR STD. DET. 360-1 or 360-2 as indicated on the Plan. In Mohave County, fire hydrants shall be in accordance with EPCOR STD. DET. 360-2.

100-1 & 2.DWG 07/30/20 - 03:42pm

DATE:	<b>July '20</b>		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	<b>GENERAL NOTES</b>	DETAIL NO. <b>100-1</b>
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**GENERAL NOTES (CONTINUED)**

21. Reclaimed waterlines shall be installed in accordance with MAG SEC. 601, 610 and 616. Testing shall be in accordance with MAG SEC. 610 and 611 including disinfection/chlorination. Final flushing and bacteriological testing as specified in MAG SEC 611.15 shall not be required.
22. Any shutdown to EPCOR's system requires a minimum of 48 hours notice to EPCOR's Inspector. Shutdowns will only be allowed on Tuesdays, Wednesdays and Thursdays. Time restrictions may also apply.
23. Concealed Pick-hole Manhole Covers: Concealed Pick-hole manhole covers are required when the edge of the manhole covers are constructed within 3 feet of the edge of gutter, in areas that are unpaved, and areas prone to flooding. Manholes should be set 2-tenths above finish grade in all unpaved areas. Concrete collar with carsonite marker is required on all manhole locations outside of right-of-way. Concealed Pick-hole manhole covers are required for all manholes in Mohave County.
24. Water Pressure Testing: All water lines will be tested per MAG SEC. 610.15. Modifications to these specifications include; the testing to be at a minimum of 200 psi, higher test pressures may be required in certain circumstances, and loss/leakage calculations will be based upon a maximum of 1500-feet, starting with the smallest diameter pipe.
25. The Contractor is required to uniform slope test all sewer lines by video and vacuum test all manholes in accordance with A.A.C. R18-9-E301. Deflection testing shall be performed per MAG SEC. 615.11. Testing documentation and flash drives shall be submitted to EPCOR Development Services Project Manager for approval prior to acceptance. All required repairs are the responsibility of the contractor and must be coordinated with EPCOR inspectors.
26. Sewer Testing: All sewer mains and laterals shall be pressure tested and video tested. All sewer mains shall also be mandrill tested. The maximum allowable sag is 0.5 inches.
27. When using mechanical plugs to test sewer mains/manholes contractor must follow EPCOR STD. DET. 420.
28. In Mohave County, solid sleeves are not allowed as a remedy to a failed pressure test on a new line.

**BACKFLOW PREVENTION GENERAL NOTES:**

1. Backflow Prevention Devices: All landscape and commercial water services require backflow prevention devices, meeting the requirements of EPCOR. Backflow devices shall be in place prior to meters being set. Testing of the backflow devices may be completed after the installation of the meter.
2. Contact Utility Cross-Connection Specialist (Backflow Prevention) at (623) 445-2411 for approved assembly list, inspections and testing.

3. Use only a University Of Southern California Foundation For Cross-Connection Control and Hydraulic Research (USC) APPROVED assembly.
4. Backflow prevention assemblies shall have a certificate of approval issued by USC-FCCCHR, or other approved third-party certifying entity unrelated to the product manufacturer or vendor, in accordance with AAC R18-4-215. All assemblies shall be installed in accordance with EPCOR standard details. No assembly shall be placed in service unless it has been tested and is functioning as designed. A certified test must be submitted to EPCOR Cross Connection Specialist (Backflow Prevention) for approval. Approval of water facilities will not be granted prior to backflow prevention approval.
5. Locate assembly within 36 inches of water meter unless otherwise directed by Utility's Cross-Connection Specialist.
6. All Pressure Vacuum Breaker Assemblies shall be installed a minimum of 12 inches above all downstream piping and outlets.
7. Use lead free solder only.
8. CLEARANCES:
  - a. Wall or structure: Minimum 36"
  - b. Above finish grade: Minimum 12" – Maximum 24"
9. Fire Lines: provide usage-tamper switches & wiring to alarm system where required by fire department. Note: Fire Lines longer than 75' require backflow assembly at property line or EPCOR approved location. Such Fire Lines must have backflow prevention assemblies with a metered bypass.

**APPROVAL PROCESS FOR BACKFLOW PREVENTION ASSEMBLIES:**

1. All new backflow prevention assemblies (BPAs) shall be tested and functioning as designed prior to Approval in accordance with AAC R18-4-215.
2. Developer/Contractor/Customer shall forward passing test report with required BPA information to EPCOR Cross Connection Specialist, marked pending approval.
3. EPCOR Cross Connection Specialist (Backflow Prevention) will notify Developer Services that an approved backflow prevention assembly test has been received, and this project is ready for an approval inspection.
4. A Construction Inspector then schedules an Approval Inspection with the Developer/Contractor/Customer.
5. EPCOR Construction Inspector confirms presence of BPA, and confirms proper installation guidelines have been followed.
6. Backflow Prevention approval process complete.
7. Approval may be granted provided all other required Operation Inspection items have no deficiencies.

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DATE: July '20		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	GENERAL NOTES (CONTINUED) BACKFLOW PREVENTION GENERAL NOTES BACKFLOW PREVENTION APPROVAL PROCESS NOTES	DETAIL NO. 100-2
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## WATER SYSTEM MATERIAL SPECIFICATION

### DISTRIBUTION PIPING

- C900 Polyvinyl Chloride (PVC): In accordance with American Water Works Association (AWWA) Standard C900 for pipe diameters thru 12": DR=14, elastomeric-gasket bell-end.
- Ductile Iron Pipe, mortar-lined (DIP) shall be used for pipe diameters greater than 12".
- Ductile Iron Pipe, mortar-lined (DIP): In accordance AWWA Standards C150 & C151 Mortar lining shall be in accordance with AWWA C104. All Ductile Iron Pipe shall be polyethylene wrapped for the entire length in accordance with MAG SEC. 610.6. 6" through 14" diameter must be Pressure Class 350 minimum: 16" through 24" must be Pressure Class 250 Minimum, 30" and larger must be Pressure Class 150 minimum.
- In Paradise Valley and Chaparral (Fountain Hills) Districts, Ductile Iron Pipe only. PVC is not permitted.
- Concrete Pressure Pipe, Steel Cylinder Type: In accordance with AWWA Standard C303 and MAG SEC. 758 for pipe diameters greater than 24". Manufacturer's technical data sheets shall be submitted to EPCOR for review and approval. Service taps are not permitted on concrete pressure pipe.

### DISTRIBUTION FITTING

- Push-on or mechanical joint in accordance with AWWA C111 and MAG SEC. 750.4. Joint restraints, where required, shall be Mechanical Restrained Joint with product approved by EPCOR or flanged joint for lengths in accordance with MAG STD. DET. 303-2. Field lock gaskets are not allowed.

### WATER LINE VALVE

- Mueller, Clow, Kennedy, or M&H resilient wedge seated Gate Valve in accordance with MAG SEC. 630.3 with valve box and cover in accordance with MAG STD. DET. 391-1 Type "C" minimum lid weight of 16lbs. Valves installed outside the pavement or in the flow line of a roadway shall have a debris cap installed per MAG STD. DET. 392. Butterfly valves are not allowed without EPCOR Approval.

### CONTROL VALVES (MOHAVE COUNTY ONLY)

- The external tubing needs to be stainless steel, not copper. CLA-VAL is the only acceptable manufacturer.

### TAPPING SLEEVE & VALVE

- Stainless Steel - Approved manufacturers are Cascade, JCM, and Smith-Blair.
- Paradise Valley District may require a bypass on valves on 12" or larger pipe. Contact EPCOR for approval on a case-by-case basis.

### WATER SERVICE

- For taps, pipe and fittings for water services through 2", the size shall be in accordance with EPCOR's STD. DET. 342-2. Requests for larger sizes must be submitted for review and approval. Minimum water service line size diameter shall be 1".
- Tubac District requires meter setters on all projects.
- 2" meter setters are required for critical service developments in Paradise Valley and Anthem Districts.
- Approved Saddles, all Iron Pipe Thread Tap and bronze strap: For PVC, Jones J-995, Jones J-996, Mueller H-13000 Series; For Ductile Iron Pipe, Ford 202B, Jones J-979, Mueller BR2B Series, Mueller BR2S Series.
- All brass fittings must be manufactured by Ford, Mueller, or James Jones. All angle meter stops must include locking wings.
- All corp stops and angle valves must be ball style. All fittings must be "pac-joint" type.
- All brass must be lead free.

### FIRE HYDRANTS

- All hydrants will be Wet Barrel (unless Dry Barrel hydrants are required by local jurisdiction) and be manufactured by Clow or Jones. Break-off check valve shall be Clow.
- All hydrants shall be equipped with national standard hose threads.

### TRACER WIRE

- See EPCOR's STD. DET. 350-1. Tracer wire must be used for all water lines.

### DIP SECTIONS

- All dip sections shall be constructed of restrained ductile iron pipe (DIP) per EPCOR's STD. DET. 370-1. All dip sections shall be joint restrained DIP with polyethylene wrap for the entire length per MAG SEC. 610.6. Joint restrained lengths will follow MAG STD. DET. 303-1 and 303-2. Anchor blocks/thrust blocks must be installed for vertical bends per MAG STD. DET. 381.

### MARKING TAPE

- See EPCOR's STD. DET. 350-1. Marking tape must be used for all water lines and services.

### MARKING POSTS

- Carsonite marking posts are required for all water valves located outside of ROW and outside of paved areas, installed with concrete collar.

### ALL OTHER ITEMS

- In accordance with MAG Specifications.
- Where MAG standards are specified, those standards are applicable.

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WATER SYSTEM  
MATERIAL SPECIFICATION

DETAIL NO.

100-3

**SEWER SYSTEM MATERIAL SPECIFICATION**

**COLLECTION MAINS**

- SDR35 PVC sewer pipe in accordance with MAG Specifications, ASTM D-3034, and ASTM F-679 or US Pipe Protecto 401 ceramic epoxy ductile iron pipe. All Ductile iron pipe shall be polyethylene wrapped for the entire length in accordance with MAG SEC. 610.6

**SEWER SERVICE**

- SDR35 PVC sewer pipe in accordance with MAG Specifications, including Marker Ball and ASTM D-3034.

**MANHOLES**

- Precast Concrete in accordance with MAG Specifications, except that no steps shall be installed in any manholes. Each manhole shall be treated with "Insecta" insect treatment as soon as that manhole is raised to grade, after lining is complete and prior to final acceptance. All sewer manholes shall be lined, including the base, with one of the following products, as applied by a certified applicator:

- NeoPoxy NPR-5300 Series epoxy
- Raven 405/A10
- Sauereisen 210
- Sewer Shield 100

As a minimum, lining is required under the following conditions:

- Manholes for sewers that are 10" in diameter, or larger
- Manholes for sewers that are 10' in depth, or greater
- Manholes that receive wastewater from force mains
- Drop manholes
- Manholes deemed necessary by EPCOR

**MANHOLE COVER**

- Cast Iron in accordance with MAG Specifications. All manholes shall have a 30" frame and cover, Neenah R-1743. Lid to be stamped "Sanitary Sewer" in accordance with MAG Detail 424. No agency identification shall be added. See EPCOR's STD. DET. 100-2 for information on water tight manhole covers.

**ALL OTHER ITEMS**

- In accordance with MAG Specifications.

**FORCE MAINS**

- PVC pressure pipe in accordance with AWWA C900 or C905, Griffin H2Sewer Safe or US Pipe Protecto 401 Ductile Iron Pipe, min. pressure class 150. All ductile iron pipe shall be polyethylene wrapped for the entire length in accordance with MAG SEC. 610.6.

**SEWER SYSTEM MATERIAL SPECIFICATION (CONTINUED)**

**MARKING POSTS**

- Carsonite marking posts are required for all sewer mains outside of ROW and outside of paved areas, and are required for force mains greater than 16 inches in diameter.

**TRACER WIRE**

- See EPCOR's STD. DET. 350-1. Tracer wire must be used for all sewer force mains.

**MARKING TAPE**

- See EPCOR's STD. DET. 350-1. Marking tape must be used for all sewer lines and services.

**ALL OTHER ITEMS**

- In accordance with MAG Specifications.
- Where MAG standards are specified, those standards are applicable regardless of project location.

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SEWER SYSTEM  
MATERIAL SPECIFICATION

DETAIL NO.  
100-4

**RECLAIMED WATER SYSTEM MATERIAL SPECIFICATION**

**DISTRIBUTION PIPING**

- C900 Polyvinyl Chloride (PVC): In accordance with American Water Works Association (AWWA) Standard C900 for pipe diameters up to 12"; DR=18, elastomeric-gasket bell-end.
- In Mohave County, all PVC must be DR14 only. DR18 is not permitted.
- C905 Polyvinyl Chloride (PVC): In accordance AWWA Standard C905 for pipe diameters greater 12"; DR=18, elastomeric-gasket bell end.
- Ductile Iron Pipe (DIP): In accordance with AWWA Standards C150 & C151. Motar lining shall be in accordance with AWWA C104. All Ductile Iron Pipe shall be polyethylene wrapped for the entire length in accordance with MAG SEC. 610.6. 6" through 14" diameter must be Pressure Class 350 minimum; 16" through 24" must be Pressure Class 250 minimum, 30" and larger must be Pressure Class 150 minimum.
- All pipe shall be appropriately identified through integral coloring and wording of the pipe, stenciling of the pipe, or pipe sleeving (pipe socks) in accordance with MAG SEC. 616. Marking tape shall be installed in accordance with EPCOR's STD. DET. 350-1.

**FITTINGS**

- Push-on or mechanical joint in accordance with MAG SEC. 750. Joint restraints, where required, shall be Mechanical Restraint Joint with product approved by the Utility for lengths in accordance with MAG STD. DET. 303-2.

**VALVES**

- Mueller, Clow, Kennedy, or M&H resilient wedge seated Gate Valve in accordance with MAG SEC. 630.3 with valve box and cover in accordance with MAG Detail 391-1 Type "C" minimum lid weight of 16lbs.
- Valve riser pipes shall be painted purple (Seymour Safety Purple) inside and out. Debris caps with identification tag shall be installed in accordance with MAG STD. DET. 392, MAG SEC. 616, and EPCOR's STD. DET. 600-1.

**SERVICES**

- Taps, pipe and fittings for water services 1-1/2" and 2" size shall be in accordance with EPCOR's STD. DET. 610-1. Larger sizes to be submitted for approval. No services smaller than 1-1/2" will be approved by EPCOR.

**RECLAIMED WATER SYSTEM MATERIAL SPECIFICATION (CONT'D)**

**DIP SECTIONS**

- All dip sections shall be constructed of restrained ductile iron pipe (DIP) per EPCOR's STD. DET. 370-1. All dip sections shall be joint restrained DIP with polyethylene wrap for the entire length per MAG SEC. 610.6. Joint restrained lengths will follow MAD STD. DET. 303-1 and 303-2 and appropriately identified in accordance with MAG SEC. 616. Anchor blocks/thrust blocks must be installed for vertical bends per MAG STD. DET. 381.

**MARKING TAPE**

- Wording per MAG SEC. 616 to be used on all reclaimed water mains. The marking tape shall be printed "Caution: Reclaimed Water Line" on Purple Tape for reclaimed water lines.

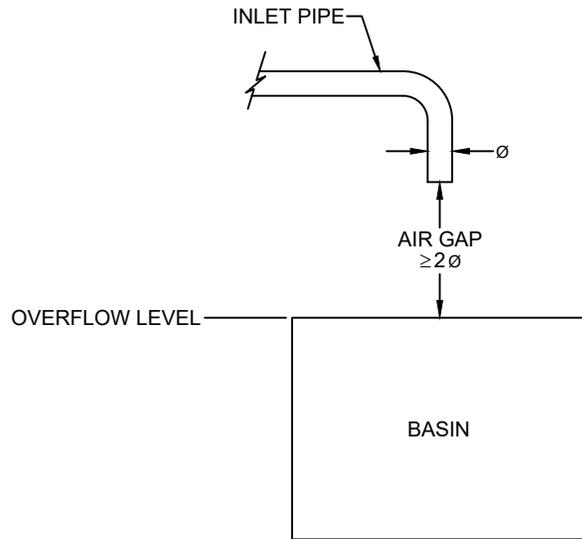
**ALL OTHER ITEMS**

- In accordance with MAG Specifications.
- Where MAG standards are specified, those standards are applicable regardless of project location.

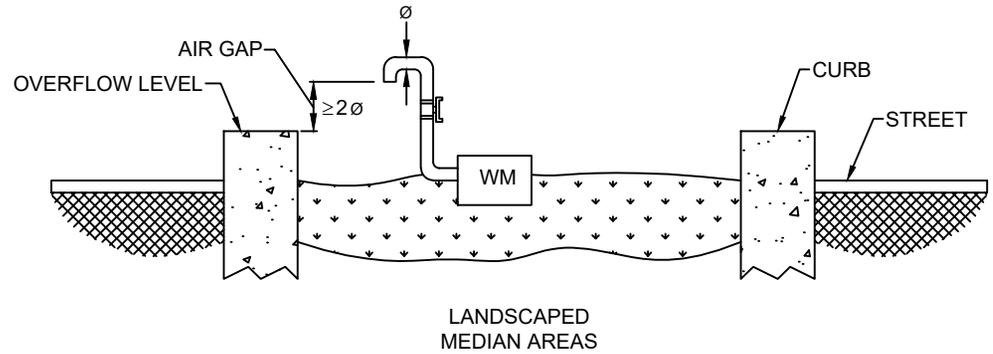
100-3 & 4 & 5.DWG 07/30/20 - 03:42pm

DATE: July '20		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	RECLAIMED WATER SYSTEM MATERIAL SPECIFICATION	DETAIL NO. 100-5
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TYPICAL BASIN STYLE AIR GAP



TYPICAL FLOOD IRRIGATION STYLE AIR GAP



NOTES:

1. AN AIR GAP IS A PHYSICAL SEPARATION BETWEEN THE END OF A POSSIBLE WATER SUPPLY PIPE AND THE OVERFLOW LEVEL OF AN OPEN OR NON-PRESSURIZED BASIN.
2. AIR GAP DISTANCE TO BE MEASURED FROM BOTTOM OF PIPE TO OVERFLOW LEVEL
3. AIR GAP DISTANCE TO ALWAYS BE AT LEAST TWICE THE INLET PIPE DIAMETER, AND IN NO CASES LESS THAN 1".
4. CONTACT EPCOR CROSS CONNECTION SPECIALIST (BACKFLOW PREVENTION) @ 623-587-5202 FOR APPROVED ASSEMBLY LIST, INSPECTIONS AND TESTING.
5. SEE EPCOR'S STD. DET. 100-2 FOR MORE INFORMATION.

300-1.DWG 07/30/20 - 03:42pm

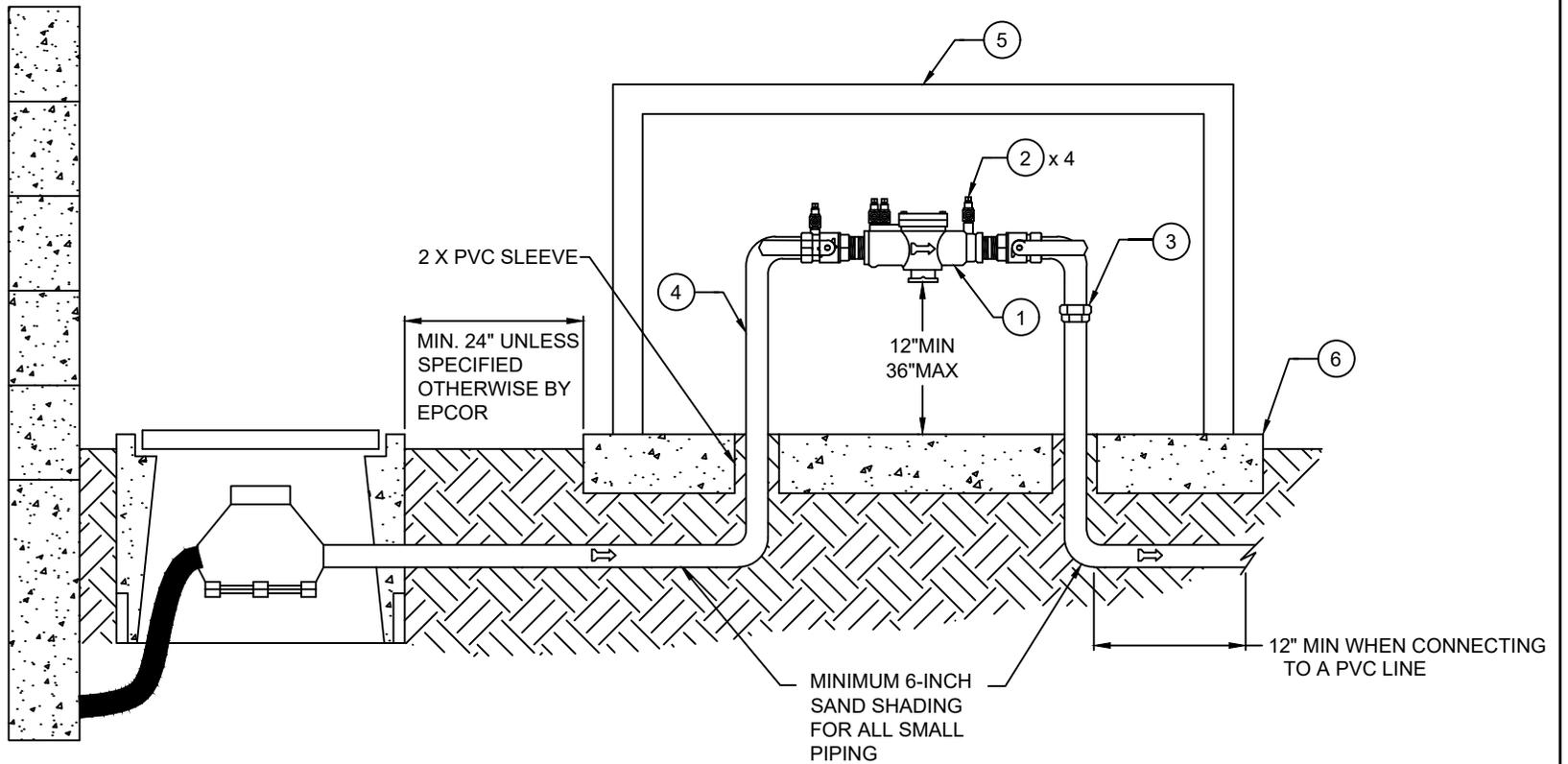
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AIR GAP

DETAIL NO.  
300-1



**NOTES:**

1. SEE EPCOR'S STD. DET. 100-2 FOR BACKFLOW PREVENTION GENERAL NOTES.
2. TO CONNECT TO GALVANIZED LINES, USE A BRASS FITTING. FOR PVC LINES USE A COPPER FEMALE ADAPTER X PVC MALE ADAPTER FITTING (OR A SCH 80 PVC NIPPLE).

**MATERIAL LIST:**

- ①. USC APPROVED ASSEMBLY, (SUBMIT TO EPCOR FOR APPROVAL).
- ②. TEST COCKS WITH BRASS PLUGS (4).
- ③. 3 PC BRASS UNION 12" MAX FROM ASSEMBLY
- ④. ALL COPPER FITTINGS, TYPE 'K' COPPER TUBING
- ⑤. VANDALISM AND/OR FREEZE PROTECTION ENCLOSURE (OPTIONAL)
- ⑥. 4" CONCRETE SLAB W/PVC SLEEVES FOR ENCLOSURE (OPTIONAL)

310-1.DWG 07/30/20 - 03:43pm

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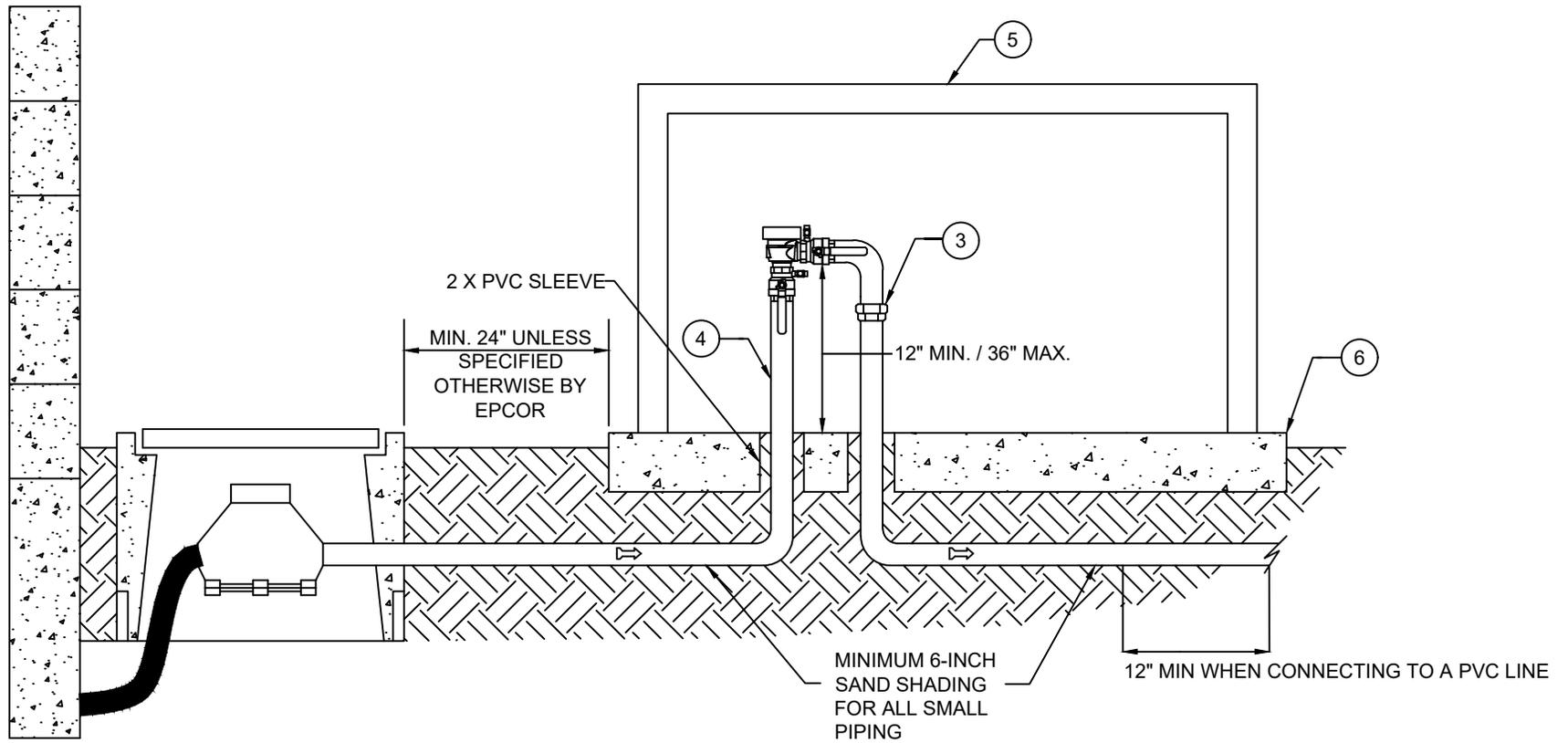


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P 623.445.2400 F 623.587.1044

1/2" - 2" REDUCED PRESSURE PRINCIPLE ASSEMBLY

DETAIL NO.  
310-1





**NOTES:**

1. SEE EPCOR'S STD. DET. 100-2 FOR BACKFLOW PREVENTION GENERAL NOTES.
2. TO CONNECT TO GALVANIZED LINES, USE A BRASS FITTING. FOR PVC LINES USE A COPPER FEMALE ADAPTER X PVC MALE ADAPTER FITTING (OR A SCH 80 PVC NIPPLE).

**MATERIAL LIST:**

- ①. USC APPROVED ASSEMBLY, (SUBMIT TO EPCOR FOR APPROVAL).
- ②. TEST COCKS WITH BRASS PLUGS (4).
- ③. 3 PC BRASS UNION 12" MAX FROM ASSEMBLY
- ④. ALL COPPER FITTINGS, TYPE 'K' COPPER TUBING
- ⑤. VANDALISM AND/OR FREEZE PROTECTION ENCLOSURE (OPTIONAL)
- ⑥. 4" CONCRETE SLAB W/PVC SLEEVES FOR ENCLOSURE (OPTIONAL)

310-3.DWG 07/30/20 - 03:43pm

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2355 W Pinnacle Peak Rd, Ste 300  
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P 623.445.2400 F 623.587.1044

1/2" - 2" PRESSURE VACUUM BREAKER ASSEMBLY

DETAIL NO.  
310-3



POTABLE WATER  
SYSTEM FIRE  
HYDRANT

REDUCED PRESSURE  
BACKFLOW ASSEMBLY  
(SUPPLIED BY  
CONTRACTOR)

WATER METER

2" GATE VALVE  
W/ NIPPLE; FOR  
CHAPARRAL  
DISTRICT  
(FOUNTAIN  
HILLS) THIS  
MUST BE A 3"  
GATE VALVE

SUPPORTS (2 EA.)  
SUPPLIED BY  
CONTRACTOR

NOTES:

1. PROPER BACKFLOW PROTECTION REQUIRED BY EPCOR.
2. USER MUST INSTALL A REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY ON EACH HYDRANT METER BEFORE USING WATER.
3. BACKFLOW ASSEMBLY MUST BE TESTED BY A RECOGNIZED, CERTIFIED BACKFLOW ASSEMBLY TESTER BEFORE USING AND ALSO EACH TIME METER IS MOVED.
4. USER MUST REMOVE BACKFLOW ASSEMBLY WHEN HYDRANT METER IS REMOVED OR RELOCATED.
5. USER IS LIABLE FOR ANY DAMAGE TO HYDRANT METER AND FITTINGS.
6. USER MUST USE GATE VALVE TO CONTROL FLOW OF WATER.

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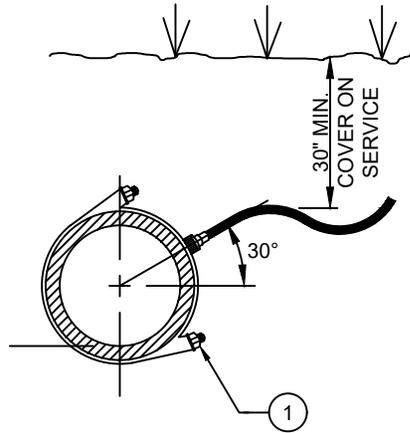


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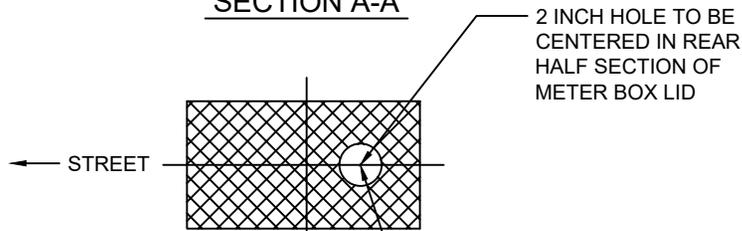
REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION  
ASSEMBLY  
FOR TEMPORARY USE ON HYDRANT METERS

DETAIL NO.  
330

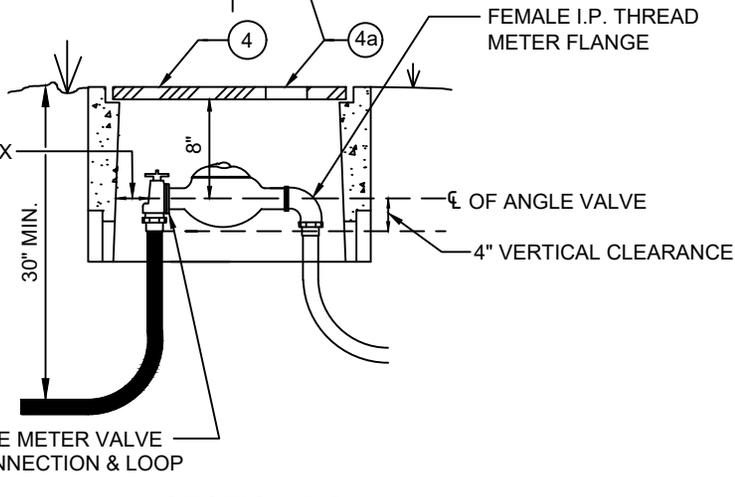
ALL SERVICES



SECTION A-A

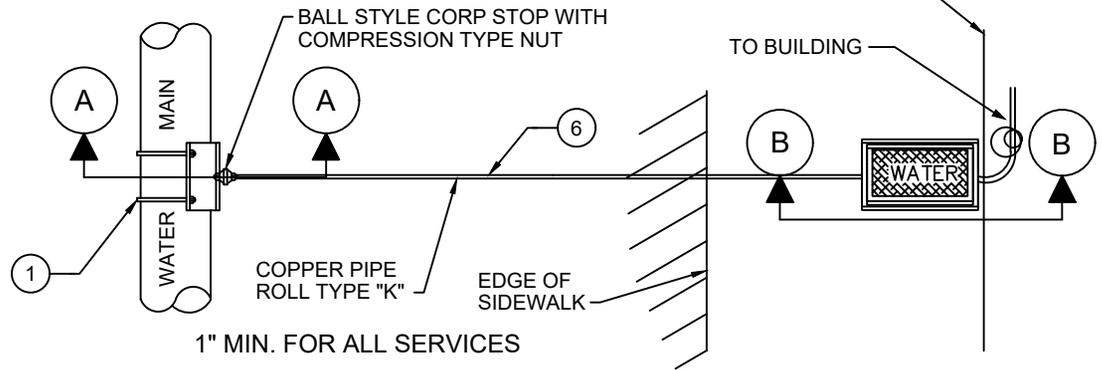


2 INCH HOLE TO BE CENTERED IN REAR HALF SECTION OF METER BOX LID



SECTION B-B

BALL STYLE ANGLE METER VALVE W/ PAC-JOINT CONNECTION & LOOP FOR LOCK



1" MIN. FOR ALL SERVICES

PLAN VIEW

NOTES:

1. SEE EPCOR'S WATER SYSTEM MATERIAL SPECIFICATIONS FOR APPROVED SADDLES.
2. AMR METER (ONLY) TO BE SET BY EPCOR UPON PAYMENT OF FEES.
3. MINIMUM #4 BOX ON 1-1/2 INCH OR LARGER - #2 BOX FOR ALL SERVICES UP TO 1 INCH.
4. CONCRETE METER BOX PER M.A.G. STD. DET. 320 BOX NO. 2 OR 4 W/ STEEL LID TO BE SET PERPENDICULAR TO BACK OF WALK OR CURB. BOX TO MATCH SLOPE OF FINISH GRADE AND SET 1" ABOVE FINISH GRADE OR BACK OF WALK OR CURB. (4a) 2 INCH DIAMETER OPENING
5. NO BOXES IN DRIVEWAYS OR SIDEWALKS.
6. 6 INCH SAND SHADING AND BEDDING ON SERVICE.
7. CAL WESTERN INC TYPE CAL102 BLUE POLY SLEEVE REQUIRED IN MOHAVE COUNTY ONLY. TRACER WIRE REQUIRED ON TOP OF SLEEVE.
8. MOHAVE COUNTY REQUIRES A COMPRESSION PINCH NUT AT THE SADDLE.
9. AAC R14-2-405.B.3 STATES, "WHERE SERVICE IS BEING PROVIDED FOR THE FIRST TIME, THE CUSTOMER SHALL PROVIDE AND MAINTAIN A PRIVATE CUTOFF VALVE WITHIN 18 INCHES OF THE METER ON THE CUSTOMER'S SIDE OF THE METER."

342.DWG 07/30/20 - 03:43pm

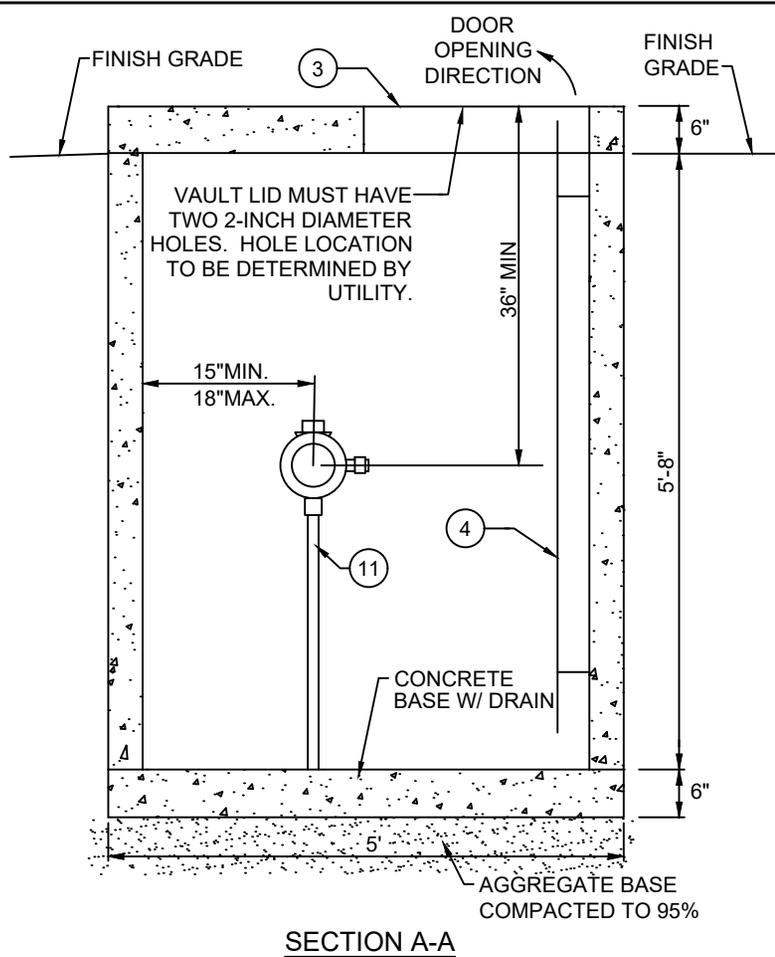
DATE:  
July '20



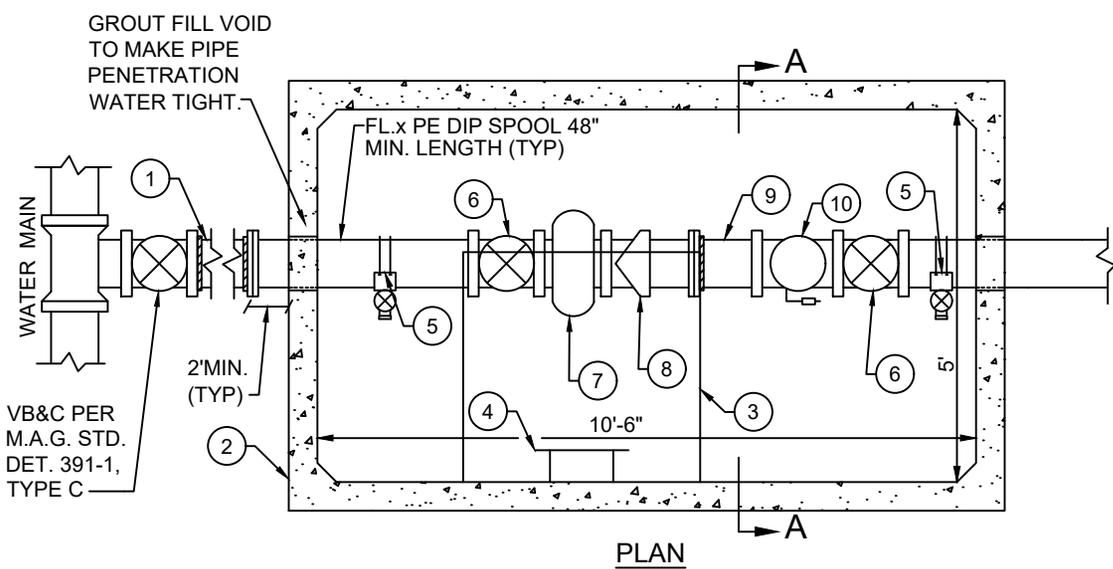
2355 W Pinnacle Peak Rd, Ste 300  
Phoenix, AZ 85027  
P 623.445.2400 F 623.587.1044

POTABLE WATER SERVICE CONNECTION  
1" THRU 2" SERVICE W/ CORRESPONDING METER

DETAIL NO.  
342



**SECTION A-A**



**PLAN**

**MATERIALS LIST:**

- ① ALL PIPING TO BE JOINT RESTRAINED, MIN. PRESSURE CLASS 150, DIP. JOINT RESTRAINTS TO BE FLANGED OR MEGALUG.
- ② PRE-CAST VAULT, OLD CASTLE 5106-WA OR EPCOR APPROVED EQUAL.
- ③ 6' x 4' ALUMINUM ACCESS DOOR WITH SPRING ASSIST RATED FOR H-20 LOADING. HALLIDAY PRODUCTS H2R7248 OR EPCOR APPROVED EQUAL. VAULT DOOR SYSTEM WILL HAVE 2" DIAMETER TO ALLOW FOR ANTENNAE. THE HOLE SHOULD BE IN A LOCATION THAT ALLOWS EASE OF INSTALLATION, ALLOW VAULT DOORS TO OPEN FULLY, AND HAVE ENOUGH CABLE TO NOT BIND.

- ④ ALUMINUM BOLT ON LADDER WITH SAFETY EXTENSION, HALLIDAY PRODUCTS LIB AND LIE OR EPCOR APPROVED EQUAL.
- ⑤ 2" DOUBLE STRAP BRONZE SADDLES PER EPCOR'S STD. DET. 342-2 AND A 2" LOCKABLE BALL VALVE.
- ⑥ MUELLER OR CLOW RESILIENT SEATED FLANGED NRS GATE VALVE WITH HAND WHEEL IN ACCORDANCE WITH M.A.G. SECTION 630.3.
- ⑦ STRAINER REQUIRED WITH INSTALLATION OF METER.
- ⑧ ALL METERS THAT ARE 3 INCHES OR LARGER MUST BE COMPOUND METERS. EPCOR WILL PROVIDE ALL COMPOUND METERS. CONTRACTOR WILL NEED TO COORDINATE PICK-UP AND INSTALLATION WITH EPCOR STAFF
- ⑨ FLANGED X FCA DIP SPOOL, MINIMUM 3 PIPE DIAMETERS LENGTH.
- ⑩ EPCOR APPROVED CHECK VALVE.
- ⑪ ADJUSTABLE PIPE SUPPORTS (2)

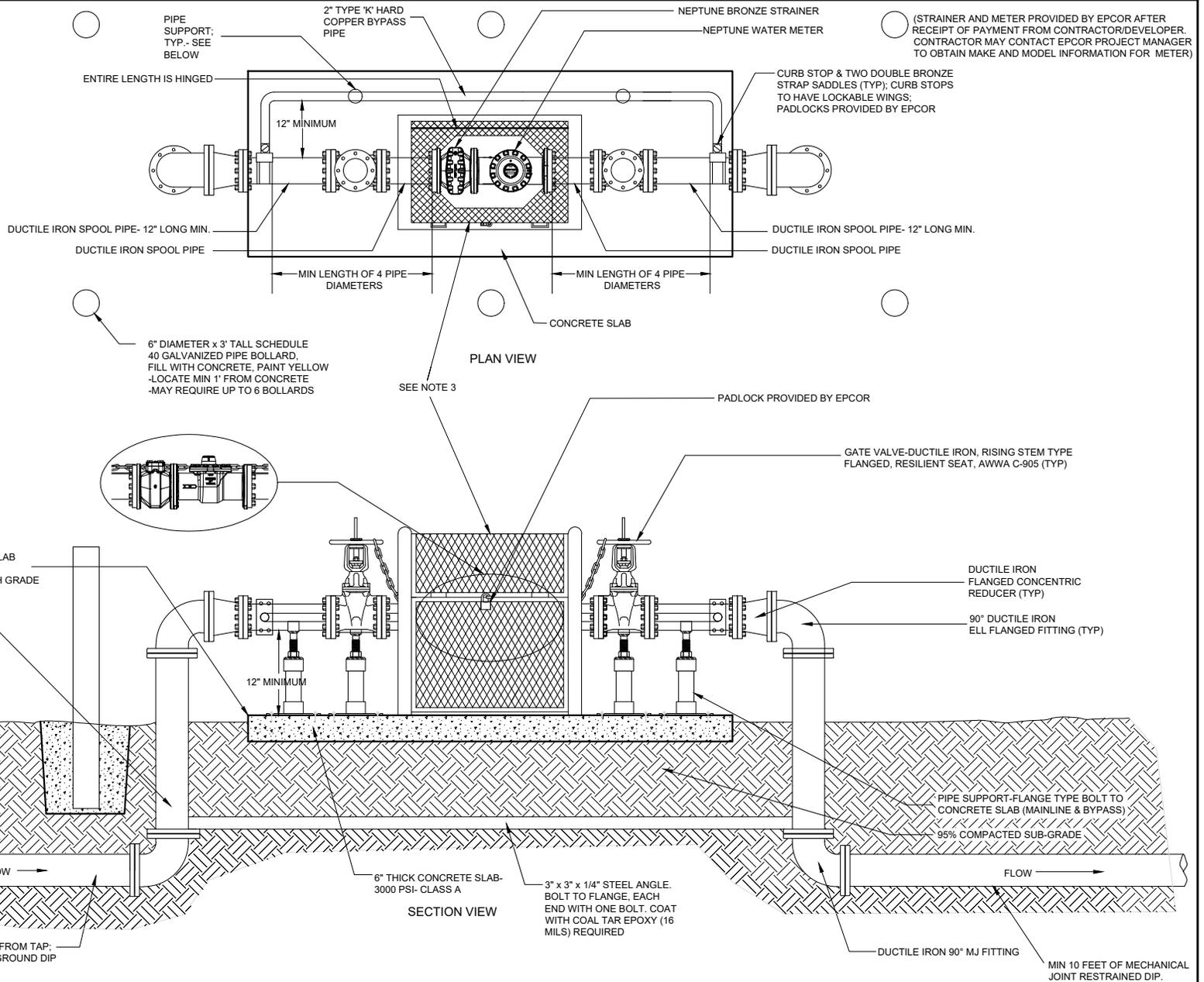
**NOTE:**  
LARGER METER VAULTS REQUIRE SPECIAL DESIGN AND EPCOR APPROVAL.

345-1.DWG 07/30/20 - 03:43pm

DATE: <b>July '20</b>		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	<b>3", 4", &amp; 6"</b> <b>POTABLE WATER METER VAULT</b>	DETAIL NO. <b>345-1</b>
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**NOTES:**

1. AN EPCOR APPROVED BACKFLOW PREVENTION ASSEMBLY IS REQUIRED DOWNSTREAM OF THE METER.
2. ALL ABOVE GROUND PIPING/VALVES SHALL BE PAINTED DESERT SAND TO MATCH COLOR OF CAGE ENCLOSURE.
3. METER & STRAINER TO BE PROTECTED WITH A LOCKABLE HINGED CLAMHELL ENCLOSURE; TOP PORTION IS HINGED AND HAS HANDLES TO ALLOW TOP PORTION TO BE LIFTED OPEN TO ALLOW FULL ACCESS TO METER AND STRAINER; WHEN OPENED, TOP PORTION SHALL STAY IN OPEN POSITION WITHOUT ASSISTANCE; METAL ENCLOSURE SHALL BE CAPABLE OF WITHSTANDING A MINIMUM OF 200 POUNDS PER SQUARE FOOT WITHOUT ANY PERMANENT DEFLECTION OR DISTORTION; POWDERCOATED WITH EPCOR APPROVED COLOR, DESERT SAND; MAKE & MODEL OF ENCLOSURE SHALL BE APPROVED BY EPCOR PRIOR TO INSTALLATION; ENCLOSURE SHALL BE BOLTED TO CONCRETE SLAB; SIDE OF ENCLOSURE ABOVE PIPE SHALL BE ENCLOSED AND BELOW PIPE MAY BE OPEN



(STRAINER AND METER PROVIDED BY EPCOR AFTER RECEIPT OF PAYMENT FROM CONTRACTOR/DEVELOPER. CONTRACTOR MAY CONTACT EPCOR PROJECT MANAGER TO OBTAIN MAKE AND MODEL INFORMATION FOR METER)

\* METER ASSEMBLIES 8" AND LARGER ARE TO BE DESIGNED BY DEVELOPER'S ENGINEER AND APPROVED BY EPCOR

345-2.DWG 07/30/20 - 03:43pm

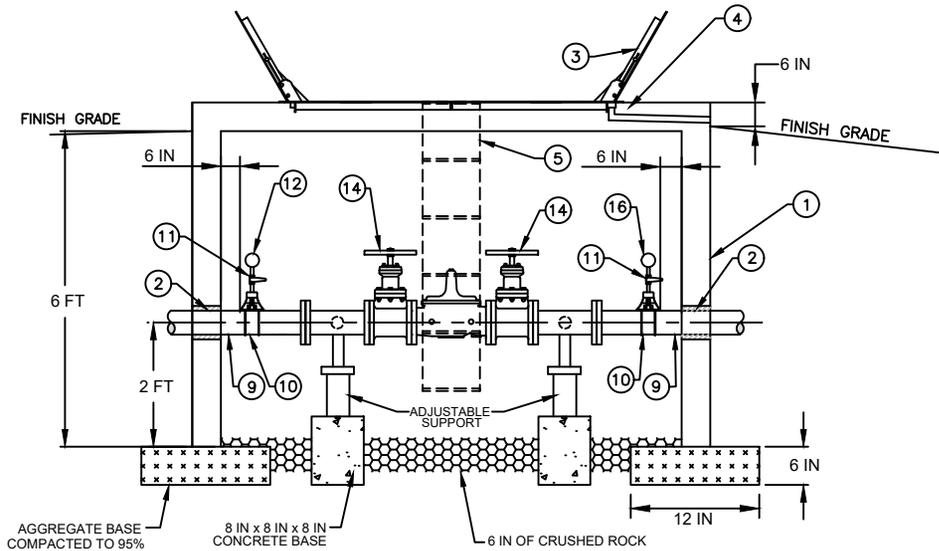
DATE:  
July '20



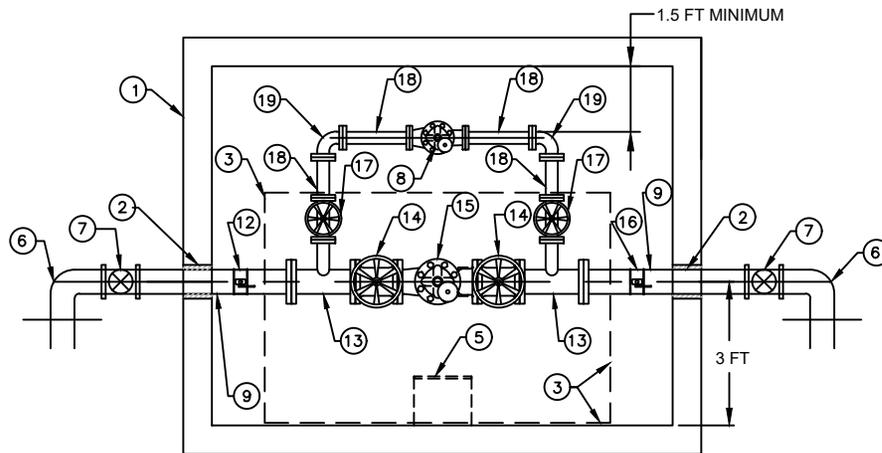
2355 W Pinnacle Peak Rd, Ste 300  
Phoenix, AZ 85027  
P 623.445.2400 F 623.587.1044

**ABOVE GROUND POTABLE WATER METER  
( 3", 4" & 6" )**

DETAIL NO.  
345-2



TYPICAL WATER UTILITY VAULT (SIDE VIEW)  
SCALE: NONE



TYPICAL WATER UTILITY VAULT (PLAN VIEW)  
SCALE: NONE

### KEYED NOTES:

- ① PRECAST CONCRETE WATER UTILITY VAULT, PER MAG STD DET 321 & 345-1, 6" MIN DEPTH OF CRUSHED ROCK FLOOR, 8" X 8" X 8" CONCRETE BASES FOR PIPE SUPPORTS ON COMPACTED NATIVE SOIL.
  - ② INSTALL ELASTONERIC GASKET AROUND PIPE. GROUT ALL PROTRUSIONS.
  - ③ 6'X4' ALUMINUM ACCESS DOOR WITH SPRING ASSIST RATED FOR H-20 LOADING. HALLIDAY PRODUCTS H2R7248 OR EPCOR APPROVED EQUAL.
  - ④ 1.5" THREADED DRAIN INCLUDED WITH ACCESS HATCH TO PREVENT RAINFALL FROM ACCUMULATING INSIDE VAULT. CONTRACTOR TO PROVIDE PVC PIPE TO DRAIN WATER AWAY FROM ACCESS HATCH CHANNEL.
  - ⑤ ALUMINUM BOLT ON LADDER WITH SAFETY EXTENSION. HALLIDAY PRODUCTS L1B AND L1E OR EPCOR APPROVED EQUAL.
  - ⑥ 90 DEGREE BEND, FLG X MJ WITH THRUST BLOCKS.
  - ⑦ GATE VALVE, MJ X FLG WITH BOX & COVER.
  - ⑧ \*\*PRV FLxFL (4" CLAY-VAL 90-01 PRV, WITH THE FOLLOWING OPTIONS: A, B, C, D, S, Y, & VALVE POSITION INDICATOR-X101)
  - ⑨ DIP SPOOL FLxFL
  - ⑩ FORD SERVICE SADDLE OR APPROVED EQUAL.
  - ⑪ 1" BALL VALVE 2-1" BRASS NIPPLES. 1-1"-1/4" BUSHING ALL FITTINGS TO BE THREADED.
  - ⑫ PRESSURE GAUGE (LIQUID FILLED), 150 PSI RANGE
  - ⑬ TEE FLxFL (8"x6"x4") WITH PIPE SUPPORT ON 8"x8"x8" CONCRETE BASE ON COMPACTED SOIL.
  - ⑭ GATE VALVE FLxFL (NON-RISING STEM)
  - ⑮ \*\*PRV, FLxFL (6" CLA-VAL 90-01 PRV, WITH THE FOLLOWING OPTIONS: A, B, C, D, S, Y & VALVE POSITION INDICATOR-X101)
  - ⑯ PRESSURE GAUGE (LIQUID FILLED) 200 PSI RANGE.
  - ⑰ GATE VALVE FLxFL (NON-RISING STEM)
  - ⑱ DIP SPOOL FLxFL
  - ⑲ 90° BEND FLxFL
- \* THE SIZES OF THE TEES, SPOOLS, VALVES, BENDS ETC. ARE CONTINGENT UPON PRV SIZING.
- \*\* IN CHAPARRAL BERMAD CONTROL VALVES WITH HIGH SENSITIVITY PILOTS ARE TO BE USED IN PLACE OF CLA-VAL.

**BACKFILL**

- IN NON-SAW CUT AREAS TO BE NATIVE MATERIAL SCREENED AT 4" OR LESS
- IN SAW CUT AREAS TO BE ONE SACK ABC SLURRY OR AS SPECIFIED BY R.O.W. AGENCY.

TRACER WIRE #12 GAUGE COPPER WIRE. WIRE NUTS NEED TO BE DRY SPLICE WATER-PROOF GEL PACKS.

**PIPE ZONE**

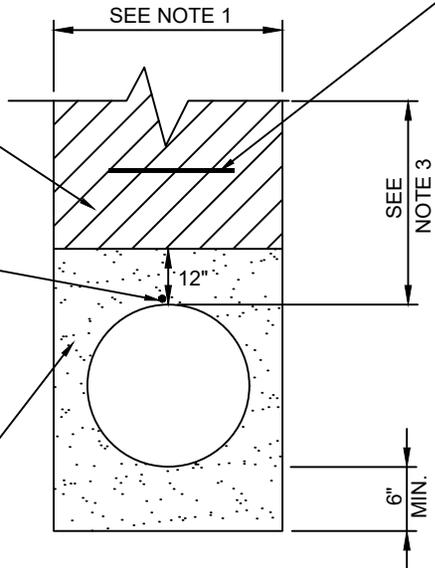
FROM MIN. 6" BELOW BOTTOM OF PIPE TO MIN. 12" ABOVE TOP OF PIPE BACKFILL WITH THE FOLLOWING PER NOTE 4:

- A. WATER LINES
  - MARICOPA & SANTA CRUZ COUNTIES = ABC
  - MOHAVE COUNTY = SAND PER M.A.G. 701.3
- B. RECLAIMED WATER LINES
  - MARICOPA & SANTA CRUZ COUNTIES = ABC
  - MOHAVE COUNTY = SAND PER M.A.G. 701.3
- C. SEWER FORCE MAIN
  - MARICOPA & SANTA CRUZ COUNTIES = ABC
  - MOHAVE COUNTY = SAND PER M.A.G. 701.3
- D. GRAVITY SEWER LINES
  - ALL SERVICE AREAS = 3/8" CRUSHED WASHED ROCK (NO REJECTS)

**WATER AND SEWER SERVICES**

(all Utility service areas)

MINIMUM 6" SAND BEDDING AND 6" SAND SHADING. BACKFILL AS PER DETAIL.



**PIPE MARKING TAPE**

MARKING TAPE SHALL BE LOCATED 18 INCHES BELOW GROUND SURFACE.

WORDING PER M.A.G. SEC. 616 TO BE USED FOR ALL WATER, & RECLAIMED WATER LINES AND SERVICES. THE MARKING TAPE SHALL BE PRINTED ON STANDARD COLORED NON-DETECTABLE TAPE. LETTERING SHALL BE BLACK, 1-1/2" HEIGHT MINIMUM.

RECLAIMED WATER LINES SHALL USE PURPLE TAPE & SHALL READ "CAUTION: RECLAIMED WATER LINE" POTABLE WATER LINES SHALL USE BLUE TAPE & SHALL READ "CAUTION: POTABLE WATER LINE"

RAW & NON-POTABLE WATER LINES SHALL USE YELLOW TAPE & SHALL READ "RAW WATER MAINS" AND/OR "NON-POTABLE WATER MAINS".

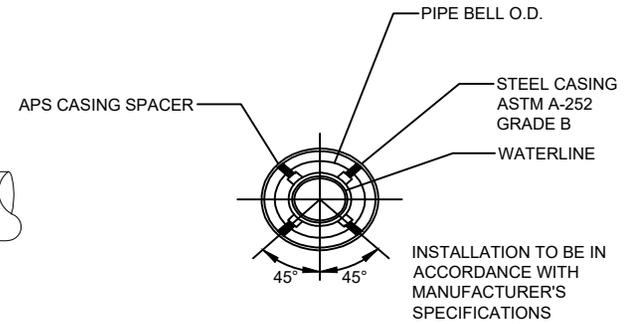
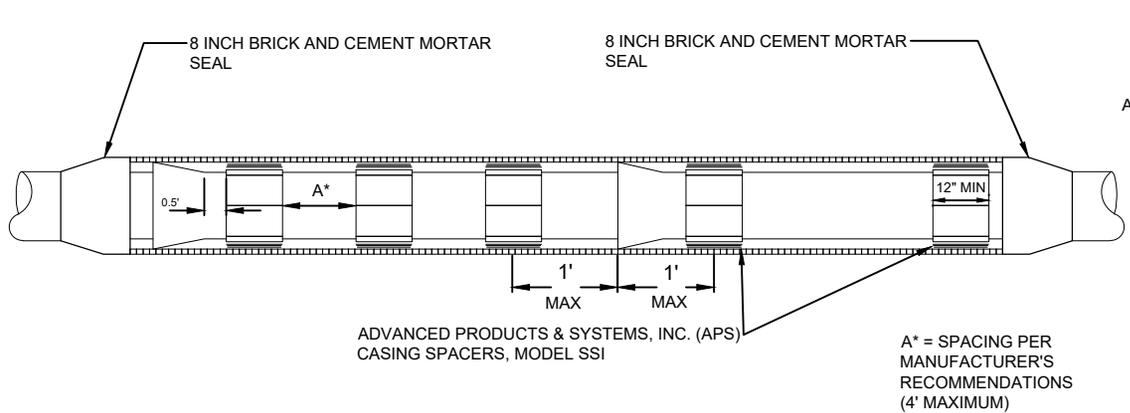
SEWER AND SERVICE LINES SHALL USE GREEN TAPE & SHALL READ "CAUTION: SEWER LINE".

**NOTES:**

1. TRENCH WILL BE IN ACCORDANCE WITH M.A.G. SECTION 601.
2. ONE SACK ABC SLURRY (CLSM) TO BE IN ACCORDANCE WITH M.A.G. SECTION 728.
3. DEPTH OF BURY TO BE MIN. 48" IN ALL STREETS. DEPTH OF BURY FOR WATER LINES IN OTHER AREAS TO BE AS FOLLOWS:
  - A) 36" MIN. FOR MAINS 8" DIAMETER AND SMALLER.
  - B) 48" MIN. FOR MAINS 10" DIAMETER AND LARGER.
4. WASHED CRUSHED ROCK TO BE IN ACCORDANCE WITH M.A.G. SECTION 716.2 AND TABLE 716-2. SAND TO BE IN ACCORDANCE WITH M.A.G. SECTION 701.3. ABC TO BE IN ACCORDANCE WITH M.A.G. SECTION 702.2 AND TABLE 702-1.
5. TRACER WIRE IS TO BE BROUGHT UP TO GRADE AT EACH FIRE HYDRANT TO GROUND / VALVE BOX. FOR LONG RUNS, THE TRACER WIRE IS TO BE BROUGHT UP AT LEAST EVERY 300 FEET INSIDE A TRACER BOX SUCH AS A SNAKEPIT MAGNETIZED TRACER BOX BY COPPERHEAD INDUSTRIES OR APPROVED EQUAL.

350-1.DWG 07/30/20 - 03:43pm

DATE: <b>July '20</b>		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	<b>PIPE TRENCH DETAIL</b>	DETAIL NO. <b>350-1</b>
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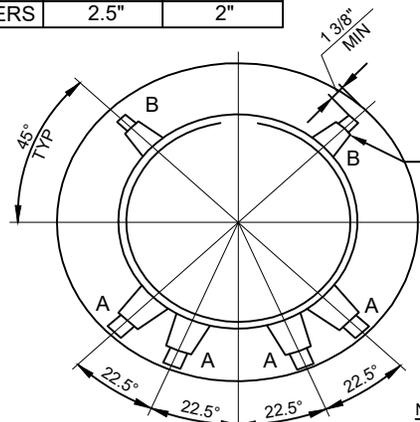


ADVANCED PRODUCTS & SYSTEMS, INC. (APS)  
CASING SPACERS, MODEL SSI

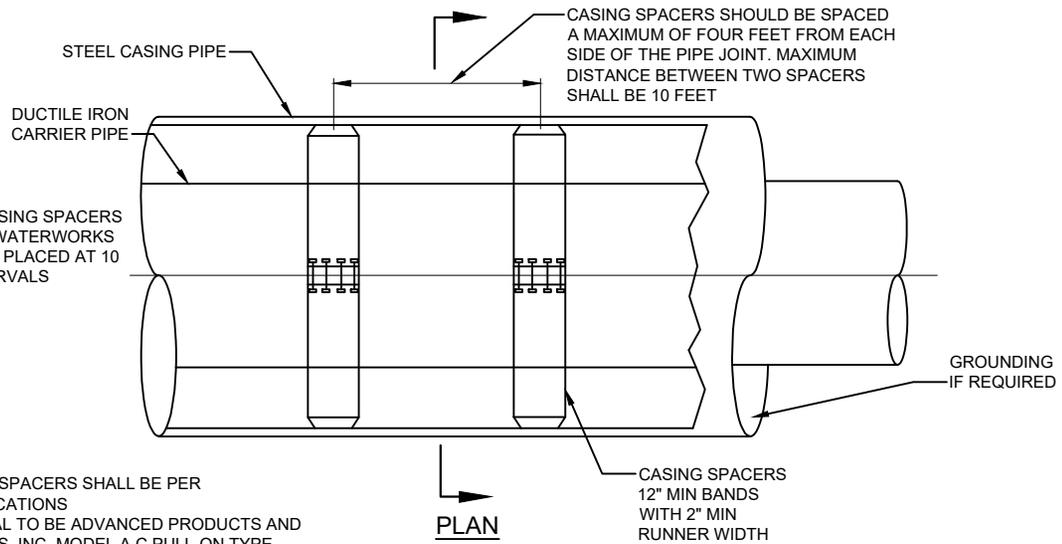
A\* = SPACING PER  
MANUFACTURER'S  
RECOMMENDATIONS  
(4' MAXIMUM)

**SLEEVE DETAIL**

	A	B
RISER	5"	4"
RUNNERS	2.5"	2"



**SECTION**



**PLAN**

**NOTES:**

1. CASING SPACERS SHALL BE PER SPECIFICATIONS
2. END SEAL TO BE ADVANCED PRODUCTS AND SYSTEMS, INC. MODEL A C PULL-ON TYPE
3. NO FILL IN ANNULAR SPACE
4. MINIMUM CASING SIZE SHALL BE 12 INCHES LARGER OUTSIDE DIAMETER OF CARRIER PIPE
5. A CASING SPACER MUST BE PLACED WITHIN 2 FEET OF EACH END OF THE CASING PIPE

350-2.DWG 07/30/20 - 03:43pm

DATE:  
July '20



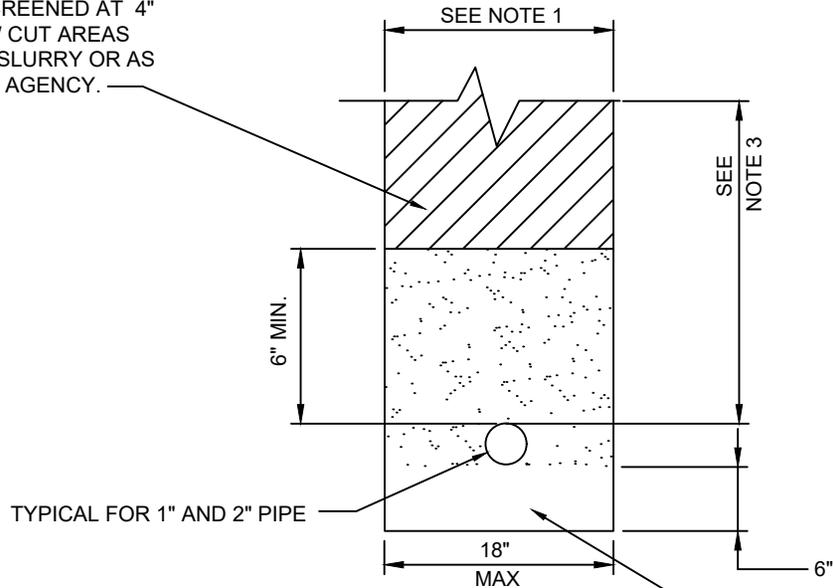
2355 W Pinnacle Peak Rd, Ste 300  
Phoenix, AZ 85027  
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**STEEL CASING**

DETAIL NO.  
350-2

**BACKFILL**

IN NON-SAW CUT AREAS TO BE NATIVE MATERIAL SCREENED AT 4" OR LESS AND IN SAW CUT AREAS TO BE 1/2 SACK ABC SLURRY OR AS SPECIFIED BY R.O.W. AGENCY.



**BEDDING**

**WATER AND SEWER SERVICES**

MINIMUM 6" SAND BEDDING AND 6" SAND SHADING. BACKFILL AS PER ABOVE.

**NOTES:**

1. TRENCH WILL BE IN ACCORDANCE WITH M.A.G. SECTION 601.
2. ONE-HALF SACK ABC SLURRY (CLSM) TO BE IN ACCORDANCE WITH M.A.G. SECTION 728.
3. DEPTH OF BURY TO BE MIN. 36" IN STREETS.
4. SAND TO BE IN ACCORDANCE WITH M.A.G. SECTION 701.3.

350-3.DWG 07/30/20 - 03:43pm

DATE:

July '20

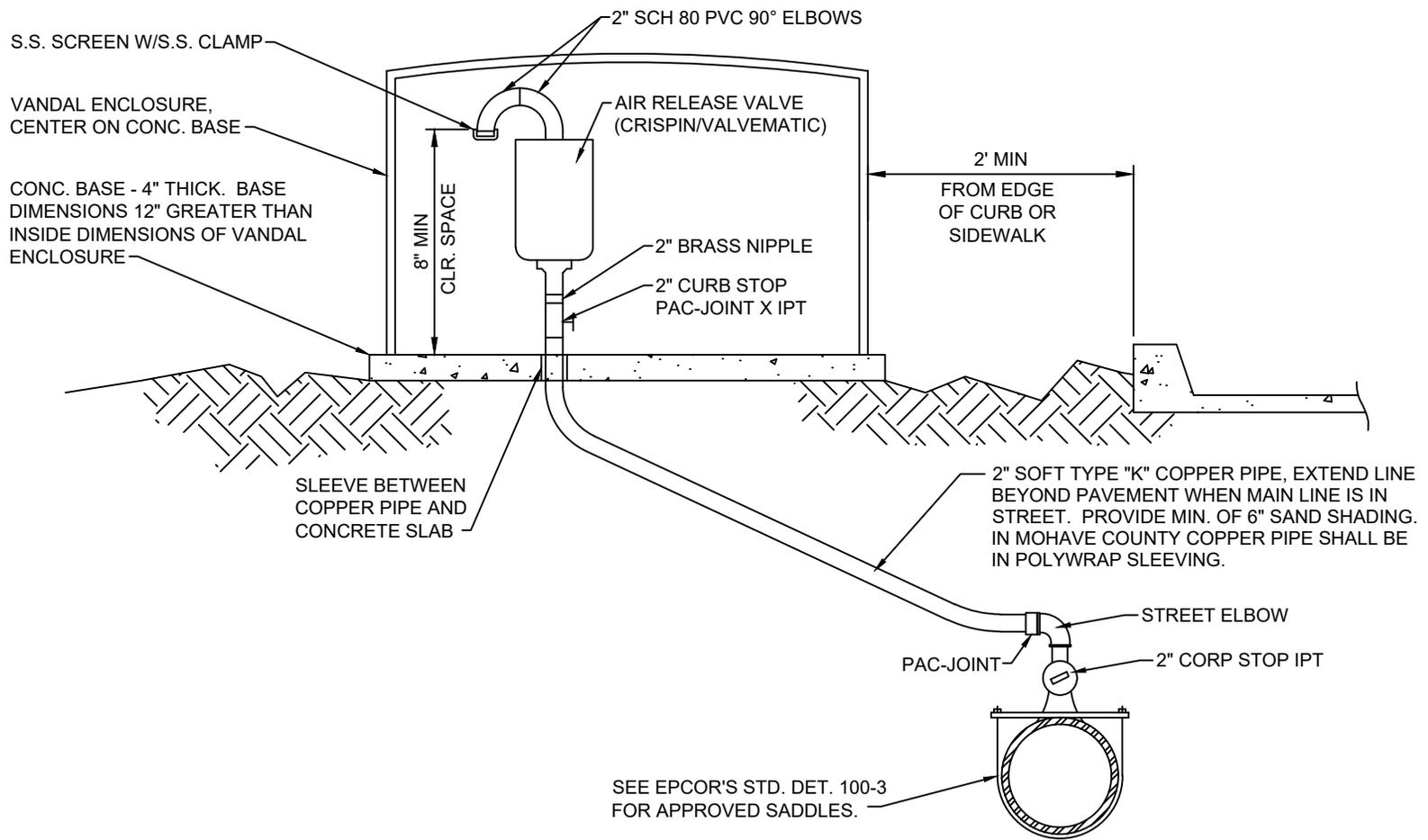


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PIPE TRENCH DETAIL FOR SERVICES

DETAIL NO.

350-3



**NOTES:**

1. VANDAL ENCLOSURE TO BE "QEM 1 GUARDSHACK" OR EPCOR APPROVED EQUAL.
2. COPPER LINE FROM MAIN TO AIR RELEASE VALVE TO BE INSTALLED WITH POSITIVE SLOPE TO PREVENT BLOCKAGE.
3. PROVIDE PER EPCOR'S WATER SPECIFICATIONS APPROVED MATERIALS LIST.
4. MAG STD. DET. 140-1 PROTECTION BOLLARDS IN TRAFFIC AREAS.
5. ALL ABOVE GROUND AIR RELEASE VALVES MUST BE PRE-APPROVED BY EPCOR. UNDERGROUND AIR RELEASE VALVES PER EPCOR'S STD. DET. 351-3.

351-1.DWG 07/30/20 - 03:43pm

DATE: July '20		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	<b>POTABLE AIR RELEASE VALVE</b>	DETAIL NO. <b>351-1</b>
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ALL ABOVE GROUND PIPE TO BE PAINTED WITH UV RESISTANT PAINT (MIN. OF 10 MILS THICKNESS). PAINT TO MATCH SURROUNDING LANDSCAPE

1/8" STAINLESS STEEL MESH SCREEN WITH STAINLESS STEEL CLAMPS

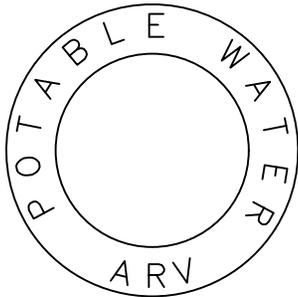
POLYWRAPPED 2" PVC 90° ELBOW (SCH. 80)

CONCRETE THRUST BLOCK PER M.A.G. STD. DET. 380

36" DIA FRP MANHOLE W/ H20 LOAD RATING & IN ACCORDANCE W/ ASTM D-3753

12" ABC BASE, 95% COMPACTION PER M.A.G. SECT. 601.4.4

MANHOLE COVER TO BE LABELED:

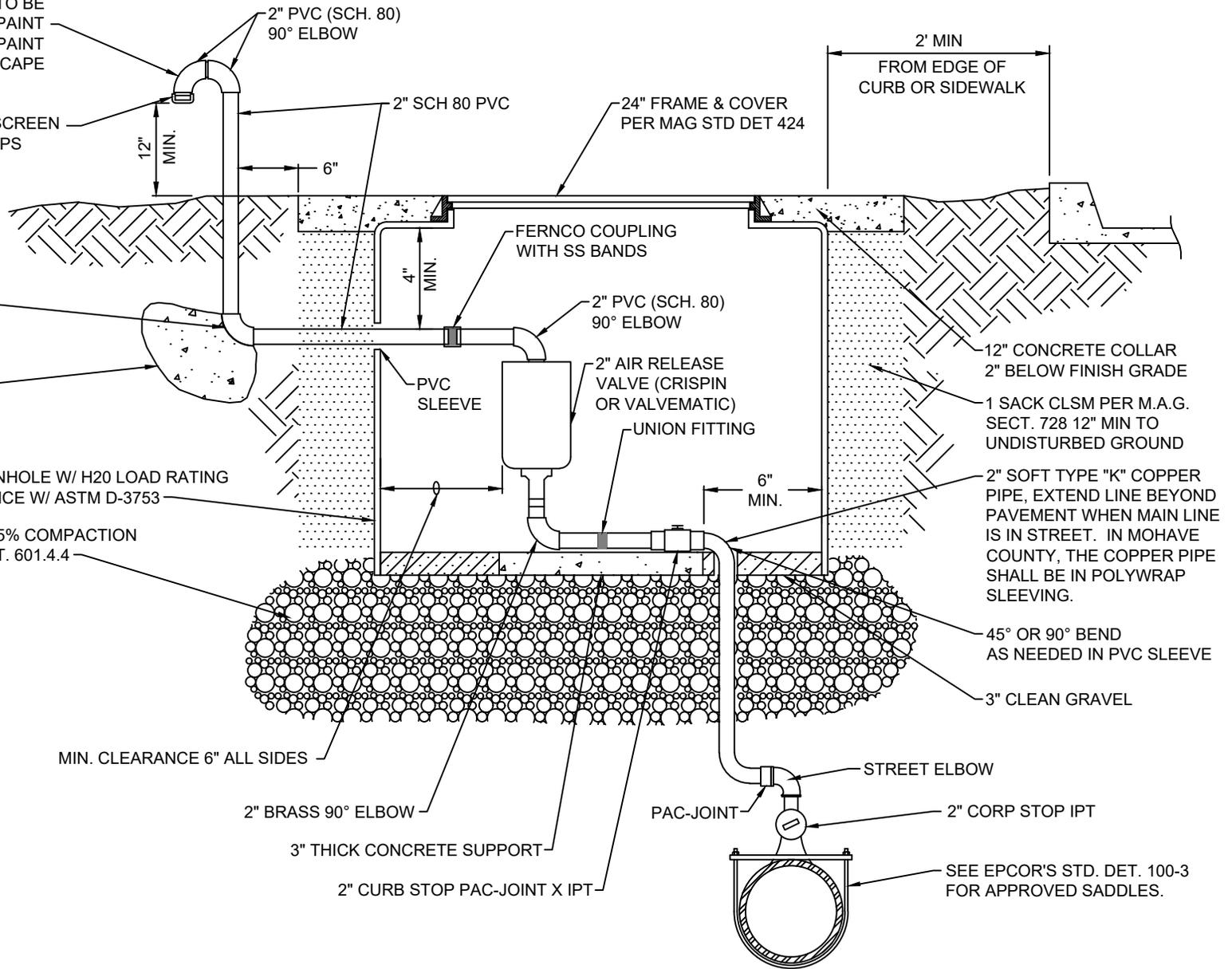


MIN. CLEARANCE 6" ALL SIDES

2" BRASS 90° ELBOW

3" THICK CONCRETE SUPPORT

2" CURB STOP PAC-JOINT X IPT



**NOTES:**

- 1) IF MULTIPLE ARV's ARE INSTALLED, EACH BOX MUST BE SEPARATED BY 3' MINIMUM.
- 2) PROVIDE PER EPCOR'S WATER SPECIFICATIONS APPROVED MATERIALS LIST.

DATE:

July '20

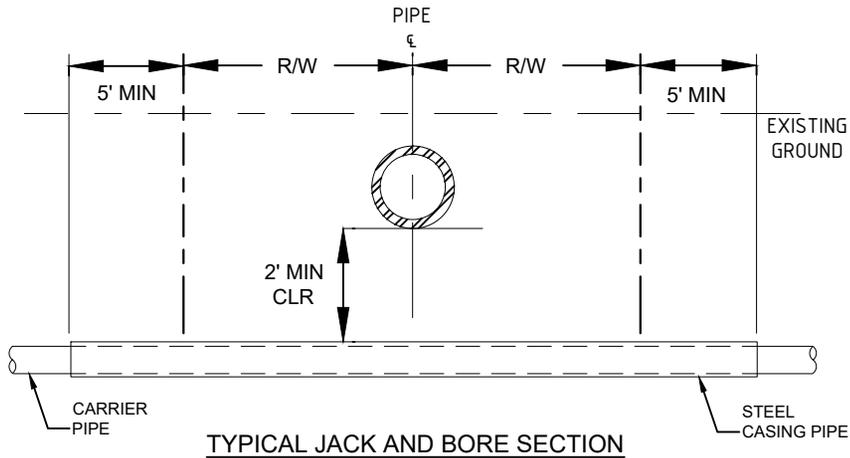


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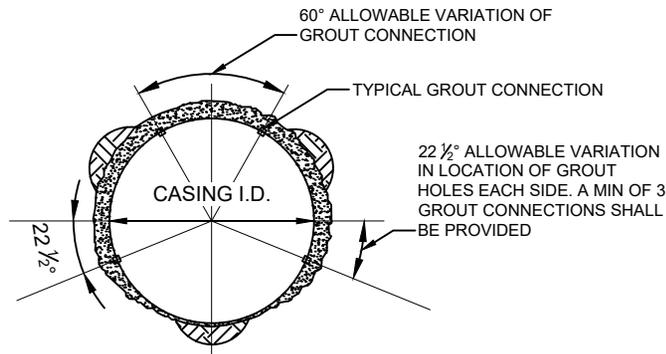
**POTABLE UNDERGROUND AIR RELEASE VALVE**

DETAIL NO.

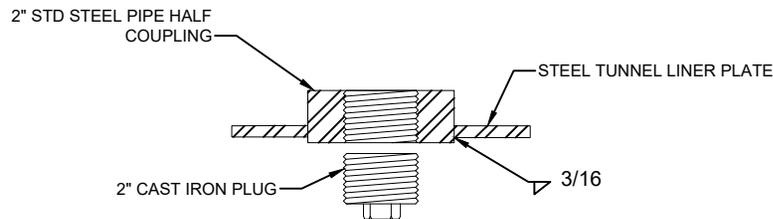
351-3



TYPICAL JACK AND BORE SECTION



CASING PIPE GROUTING DETAIL



TYPICAL GROUT CONNECTION DETAIL

**NOTES:**

1. ALL WORK ON JACK AND BORE SHALL CONFORM TO MAG STANDARD SPECIFICATIONS SECTION 602 UNLESS OTHERWISE NOTED.
2. CASING SHALL EXTEND A MINIMUM OF FIVE FEET BEYOND THE RIGHT-OF-WAY.
3. FOR CASING PIPE 36 INCHES OR LARGER, GROUT CONNECTIONS SHALL BE INSTALLED. GROUT CONNECTIONS SHALL BE PROVIDED AT A MAXIMUM SPACING OF 10 FEET.
4. CARRIER PIPE SHALL BE PLACED IN ACCORDANCE WITH MAG STANDARD SPECIFICATIONS. JOINT RESTRAINTS SHALL BE INSTALLED FOR THE SECTION OF CARRIER PIPE INSIDE THE CASING PIPE.
5. THE REQUIREMENTS FOR THE TYPE OF SOIL AND LEVEL OF COMPACTION OF THE PIPE EMBEDMENT MUST BE FOLLOWED UP TO THE ENDS OF THE PIPE CASING.
6. IF THERE IS WATER IN THE PIPE AT THE TIME OF INSTALLATION, SEEPAGE OF WATER IS POSSIBLE AND RUNNING GROUNDS CONDITIONS MAY BE ANTICIPATED. WHERE THESE CONDITIONS EXIST, THE CUTTING HEAD SHALL BE SHIELDED TO AVOID LOSS OF SUPPORT FOR THE PIPE.
7. DURING ANY DIRECTIONAL BORING OPERATIONS, PRECAUTIONS SHALL BE TAKEN TO ENSURE STORM WATER RUNOFF WILL NOT FLOW INTO THE JACKING PITS.
8. TRENCHLESS CONSTRUCTION DRIVING AND RECEIVING PITS FOR CONSTRUCTIONAL SAFETY SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.
9. CONTRACTOR TO NOTIFY INSPECTOR 48 HOURS IN ADVANCE PRIOR TO BORING.
10. CASING PIPE SHALL BE WELDED STEEL ASTM A-252 GRADE B.
11. CARRIER PIPE SHALL BE DUCTILE IRON WITH MEGA-LUG JOINT RESTRAINTS, SERIES 1100.
12. FOR RAILROAD CROSSINGS, REFER TO RAILROAD OWNER REQUIREMENTS.

Carrier Pipe Diameter (inches)	Water		Sewer	
	Minimum Casing Pipe Diameter (inches)	Minimum Casing Pipe Wall Thickness (inch)	Minimum Casing Pipe Diameter (inches)	Minimum Casing Pipe Wall Thickness (inch)
4	24	3/8	30	3/8
6	24	3/8	30	3/8
8	30	3/8	36	3/8
10	30	3/8	36	3/8
12	36	3/8	42	1/2
14	36	3/8	42	1/2
15	36	3/8	42	1/2
16	36	3/8	42	1/2
18	42	1/2	48	1/2
20	42	1/2	48	1/2
21	42	1/2	48	1/2
24	48	1/2	54	5/8
27	48	1/2	54	5/8
30	60	5/8	66	3/4
36	60	5/8	66	3/4
42	72	3/4	78	3/4
48	80	1	86	1

352-1.DWG 07/30/20 - 03:43pm

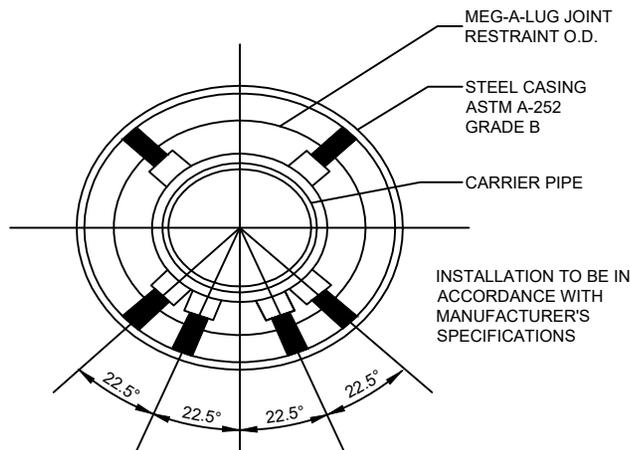
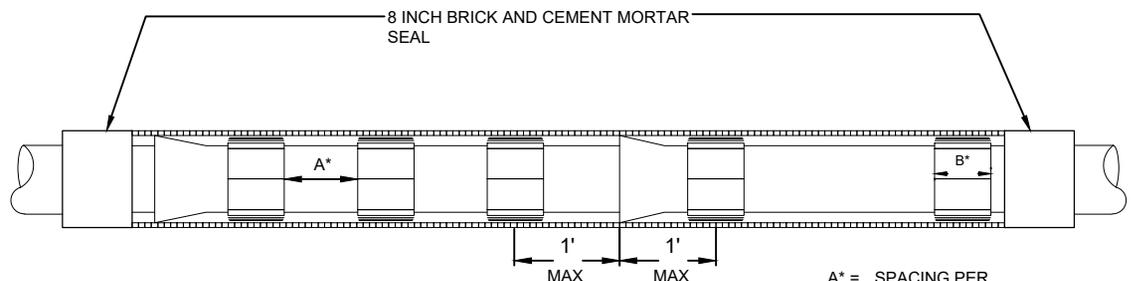
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CASING JACK-AND-BORE DETAIL

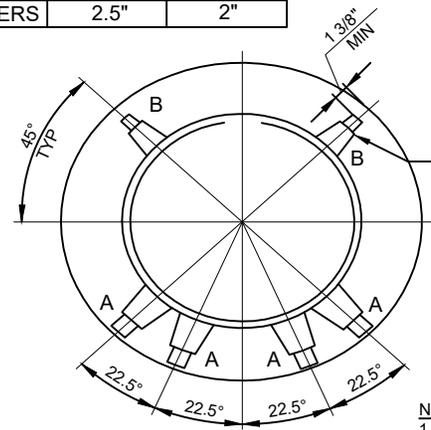
DETAIL NO.  
352-1



A\* = SPACING PER MANUFACTURER'S RECOMMENDATIONS (6' MAXIMUM)  
 B\* = 8" MINIMUM ON 36" AND SMALLER DIAMETER CARRIER PIPE  
 12" MINIMUM FOR GREATER THAN 36" DIAMETER CARRIER PIPE.

**CASING PIPE DETAIL**

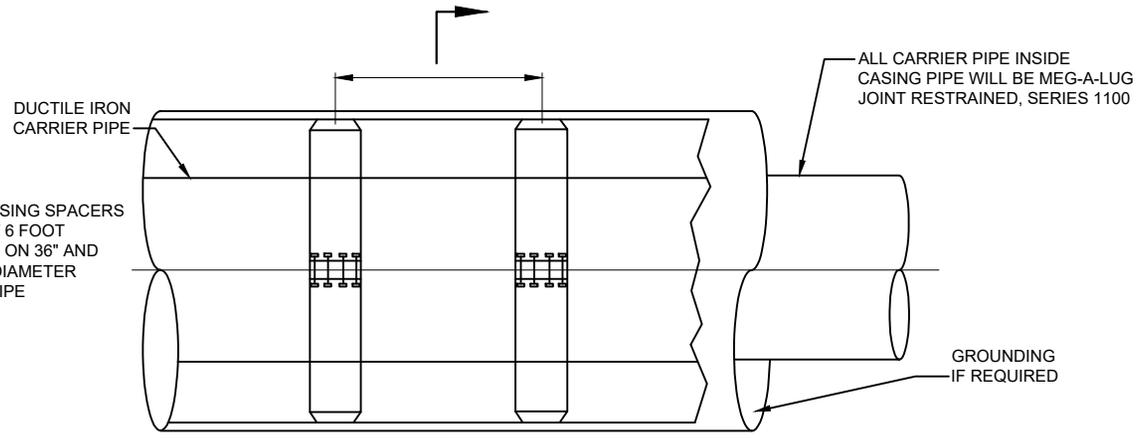
	A	B
RISER	5"	4"
RUNNERS	2.5"	2"



8" WIDE CASING SPACERS PLACED AT 6 FOOT INTERVALS ON 36" AND SMALLER DIAMETER CARRIER PIPE

- NOTES:
1. NO FILL IN ANNULAR SPACE
  2. A CASING SPACER MUST BE PLACED WITHIN 2 FEET OF EACH END OF THE CASING PIPE
  3. CASING SPACERS SHALL BE APS (SSI) OR CASCADE TYPE (CCS)

**SECTION**



**PLAN**

352-2.DWG 07/30/20 - 03:43pm

DATE:  
July '20

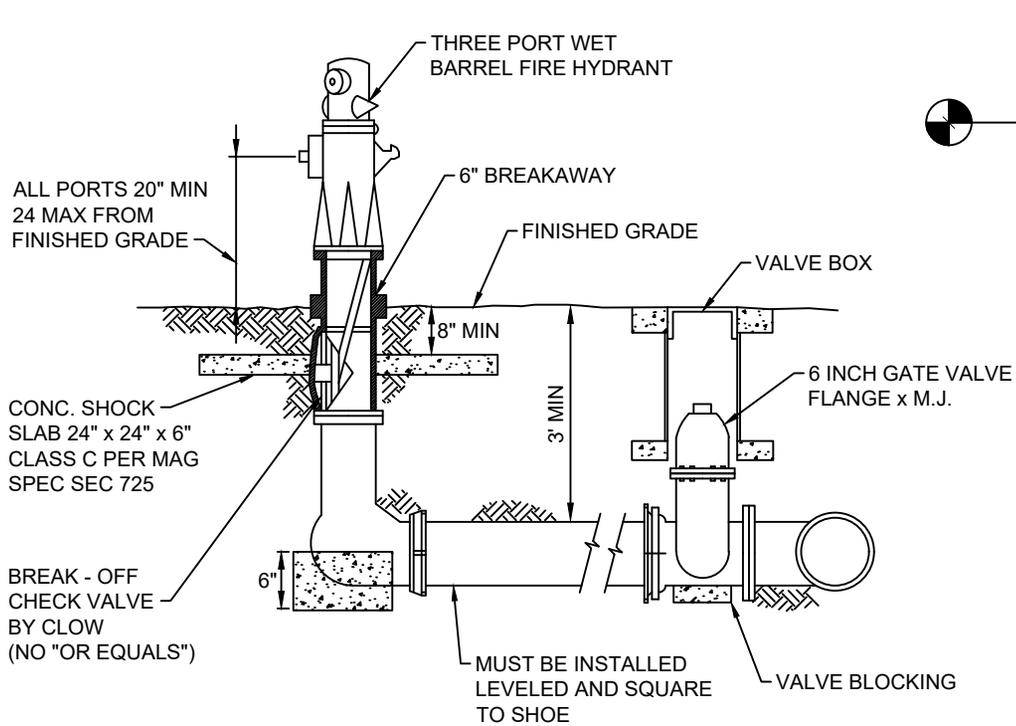


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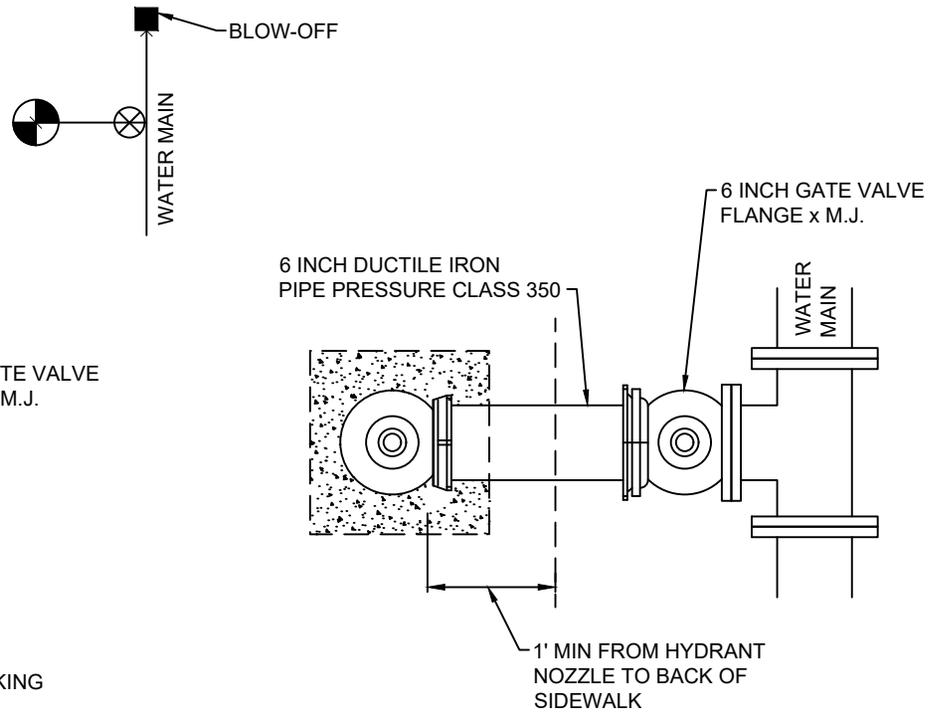
**CASING SPACER DETAIL**

DETAIL NO.  
352-2





**SECTION**



**PLAN VIEW**

**NOTES:**

1. SEE EPCOR STD. DET. 100-1 FOR FIRE HYDRANT GENERAL NOTES.
2. ALL JOINT RESTRAINTS PER M.A.G. STD. DET. 303- 1 & 2 AND M.A.G. SECT. 750.3.
3. ALL JOINTS SHALL BE RESTRAINED, INCLUDING MAIN AT TEE ENDS.
4. APPROVED HYDRANTS INCLUDE: CLOW\* AND JONES (\*CLOW HYDRANTS SHALL BE MODEL 860 WITH 2 1/2" FEMALE NPT ON TOP OF HYDRANT TO ALLOW FOR PRESSURE MONITORING).
5. THE 6 INCH GATE VALVE SHALL BE FLANGED BY MECHANICAL JOINT.
6. PROVIDE A MINIMUM 3 FOOT DIAMETER CLEARANCE AROUND HYDRANT.
7. THE HYDRANT SHALL HAVE 2 - 2 1/2" PORTS, AND 1 - 4 1/2" PORT.
8. ALL HYDRANTS SHALL HAVE NATIONAL STANDARD HOSE THREADS.
9. VALVE BOX PER M.A.G. STD. DET. 391-1-C.

360-2.DWG 07/30/20 - 03:43pm

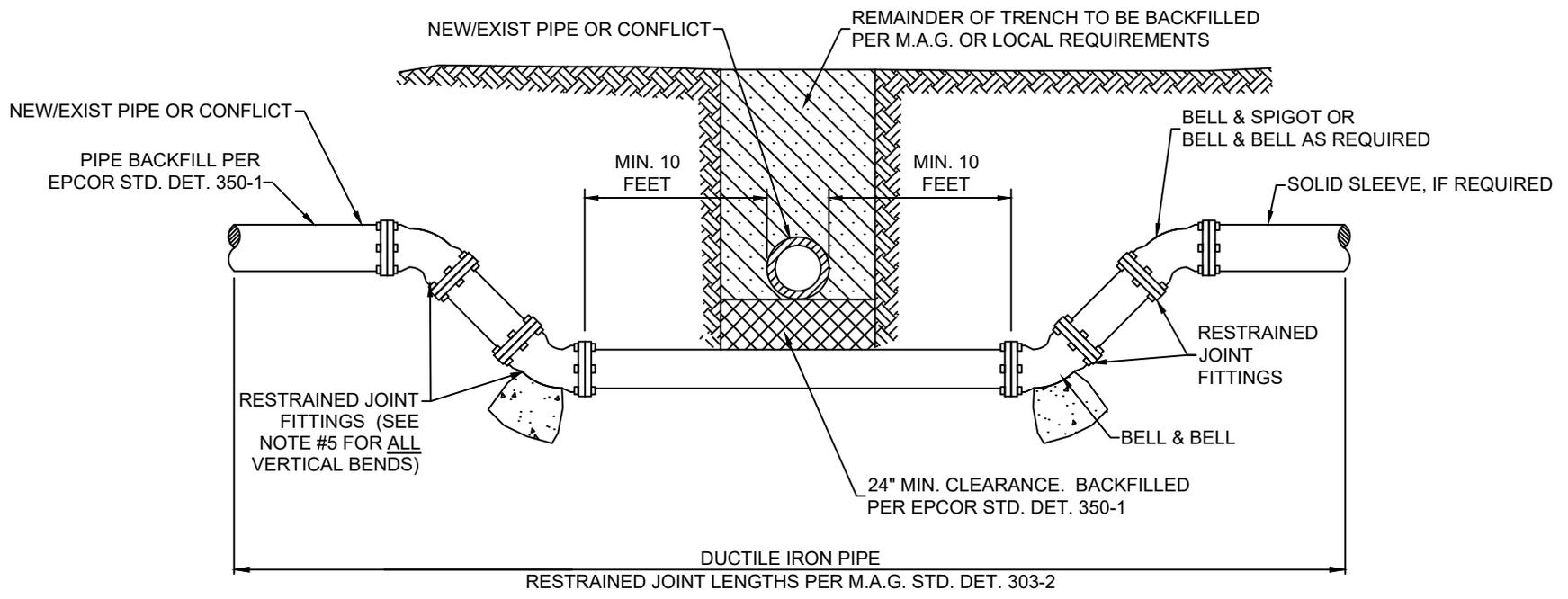
DATE:  
July '20



2355 W Pinnacle Peak Rd, Ste 300  
Phoenix, AZ 85027  
P 623.445.2400 F 623.587.1044

WET BARREL FIRE HYDRANT INSTALLATION

DETAIL NO.  
360-2

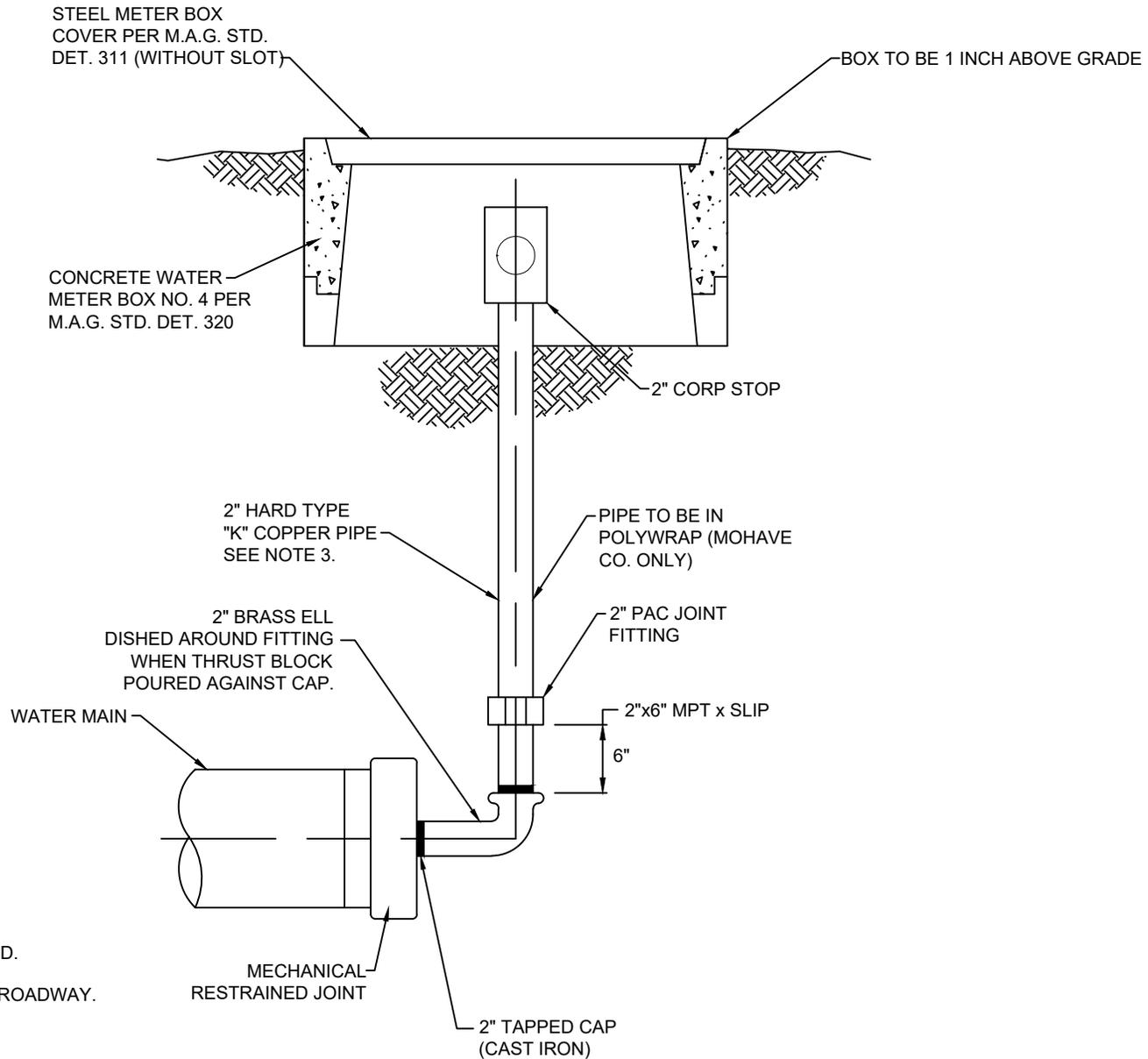


**NOTES:**

1. ALL JOINT RESTRAINTS ARE TO BE MEG-A-LUG, SIGMA, EEBA OR STAR, NO FIELD LOCS OR UNIFLANGE, FOR LENGTHS IN ACCORDANCE w/ M.A.G. STD. DET. 303-2
2. PIPE IS TO BE DUCTILE IRON, MINIMUM PRESSURE CLASS 150.
3. ALL DUCTILE IRON PIPE SHALL BE POLYETHYLENE WRAPPED FOR THE ENTIRE LENGTH IN ACCORDANCE WITH M.A.G. SECT. 610.6
4. BEGIN/END RESTRAINED JOINT STATIONING TO BE SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. ALL BENDS & FITTINGS SHALL HAVE STATIONING AND ELEVATION SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. THE BOTTOM ELEVATION OF THE CONFLICT AND THE TOP ELEVATION OF THE DUCTILE IRON PIPE AT THE CENTERLINE OF THE CONFLICT SHALL BE SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS.
5. INSTALL ANCHOR BLOCKS/THRUST BLOCKS AT ALL VERTICAL BENDS PER M.A.G. STD. DET. 381.
6. AIR RELEASE VALVES ARE REQUIRED ON THE HIGH POINT OF VERTICAL REALIGNMENT.

370-1.DWG 07/30/20 - 03:43pm

DATE: July '20		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	<b>VERTICAL RE-ALIGNMENT OF WATER MAINS</b>	DETAIL NO. 370-1
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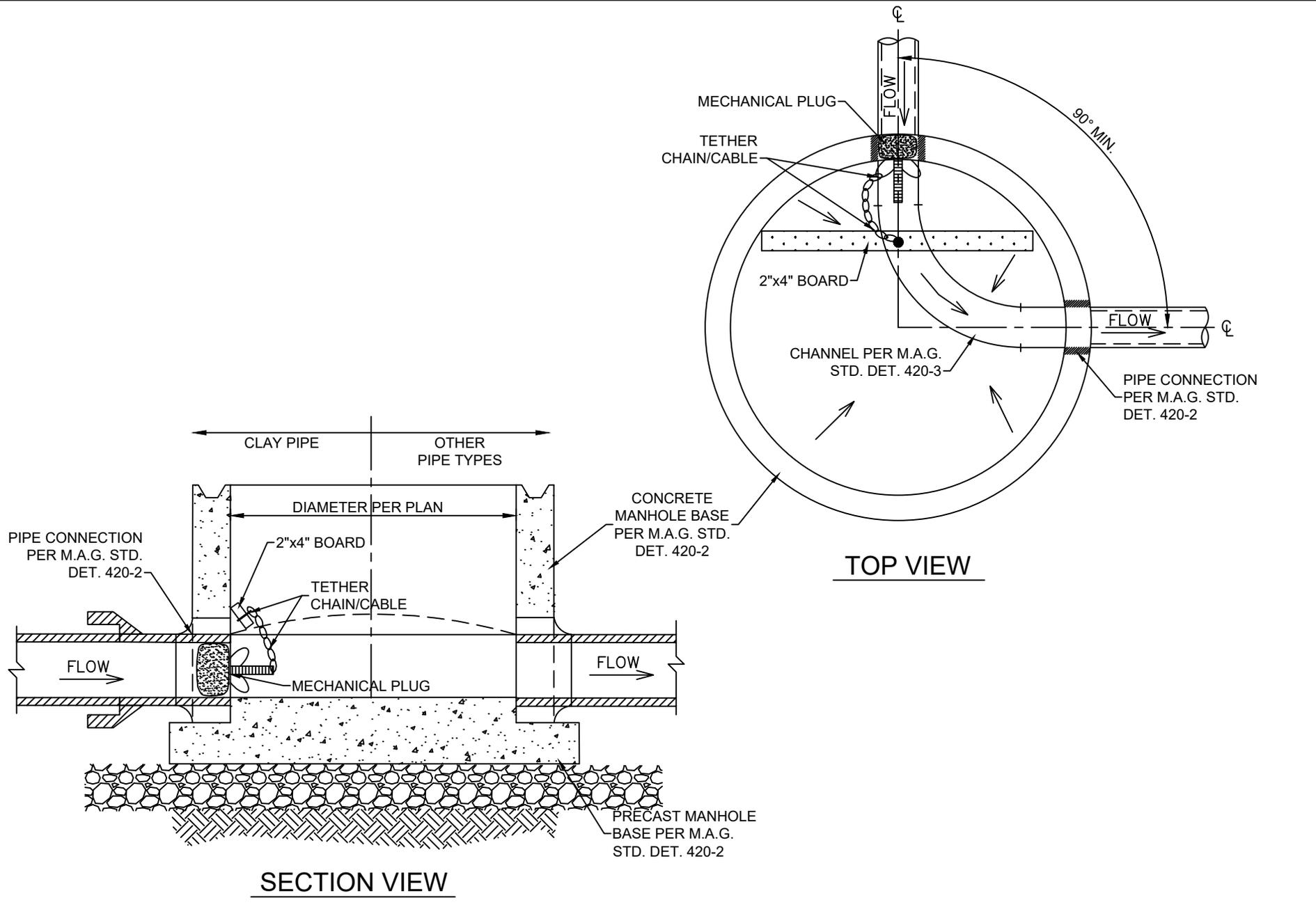


**NOTES:**

1. NO SOLDERED JOINTS
2. CARSONITE MARKER REQUIRED.
3. SOFT COPPER TO BE USED IN ROADWAY.

390-1.DWG 07/30/20 - 03:43pm

DATE: July '20		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	<b>POTABLE CURB STOP (BLOW OFF) WITH FLUSHING PIPE</b>	DETAIL NO. 390-1
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420.DWG 07/30/20 - 03:44pm

DATE:  
July '20



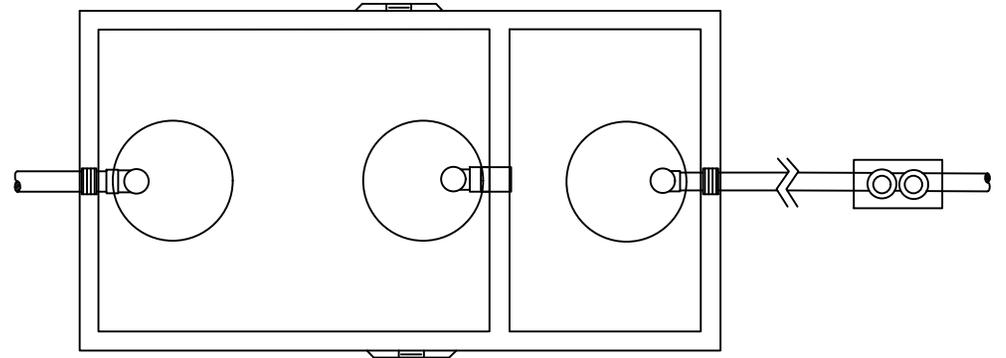
2355 W Pinnacle Peak Rd, Ste 300  
Phoenix, AZ 85027  
P 623.445.2400 F 623.587.1044

TEMPORARY MANHOLE PLUG

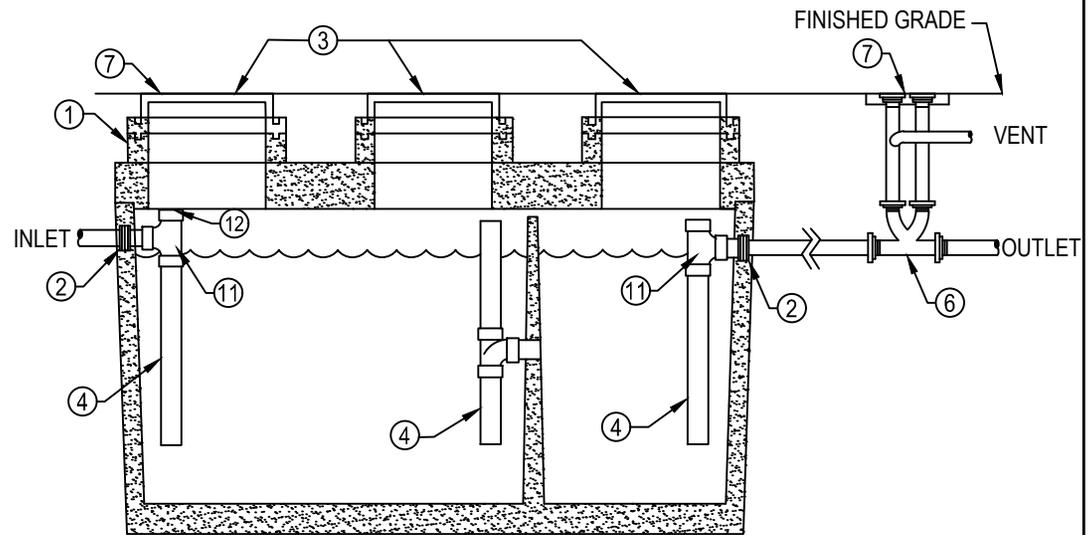
DETAIL NO.  
420

**NOTES:**

- ① ALL GRADIENT RISERS, INCLUDING THE MANHOLE FRAME WILL HAVE THE INTERIOR SEALED WITH NON-SHRINK GROUT
- ② PIPE CONNECTIONS SHALL BE FLEXIBLE CONNECTIONS AND COMPLY WITH ASTM C923 OR ASTM C1644 FOR PRECAST INTERCEPTORS; OR SECTION 7 OF C923 OR ASTM C1644 FOR MATERIALS OTHER THAN PRECAST CONCRETE.
- ③ MANHOLE, FRAME, COVER, AND COLLAR MUST BE WATERTIGHT (GASKETED), ANCHORED, DOES NOT SLIDE, AND SUPPORTS ANTICIPATED LOADS. REFERENCE M.A.G. DETAILS 422 AND 424-1.
- ④ OUTLET AND BAFFLE PLUMBING: MUST BE OPEN TOPPED, 12" DISTANCE FROM INTERNAL FLOOR TO END OF PIPE AND EXTEND 5" ABOVE THE LIQUID LEVEL. INTERNAL PIPING SHALL BE 4" DIAMETER.
- ⑤ CONSTRUCTION & SPECIFICATIONS TO MOST CURRENT REVISIONS OF ASTM C1613/ ASTM F2649/IAPMO/ANSI Z1001
- ⑥ 2-WAY CLEANOUT ON THE OUTLET LINE. VENT INTERCEPTOR TO ROOF.
- ⑦ WATER TEST AND REPAIR: INSPECTED BY EPCOR PRETREATMENT COORDINATOR PER ASTM C1613; IAPMO Z1001 OR NPCA BEST PRACTICES GUIDELINES.
- ⑧ ACCESS: MINIMUM 2: ON LARGER SIZES EACH PLUMBING FITTING (INLET, BAFFLE AND OUTLET) SHALL HAVE THE REQUIRED AND STIPULATED ACCESS OPENING, RISERS AND COVERS.
- ⑨ SUITABLE SUB-BASE BEDDING WITH GRANULAR MATERIAL SHALL BE PREPARED TO HANDLE ANTICIPATED LOADS.
- ⑩ CONTACT EPCOR PRETREATMENT AT [PRETREATMENT@EPCOR.COM](mailto:PRETREATMENT@EPCOR.COM) FOR INSPECTION/TESTING.
- ⑪ INLET AND OUTLET PLUMBING MUST HAVE TEE'S.
- ⑫ INLET TEE MUST HAVE A CAP



**TOP VIEW**  
(COVERS & RINGS REMOVED)



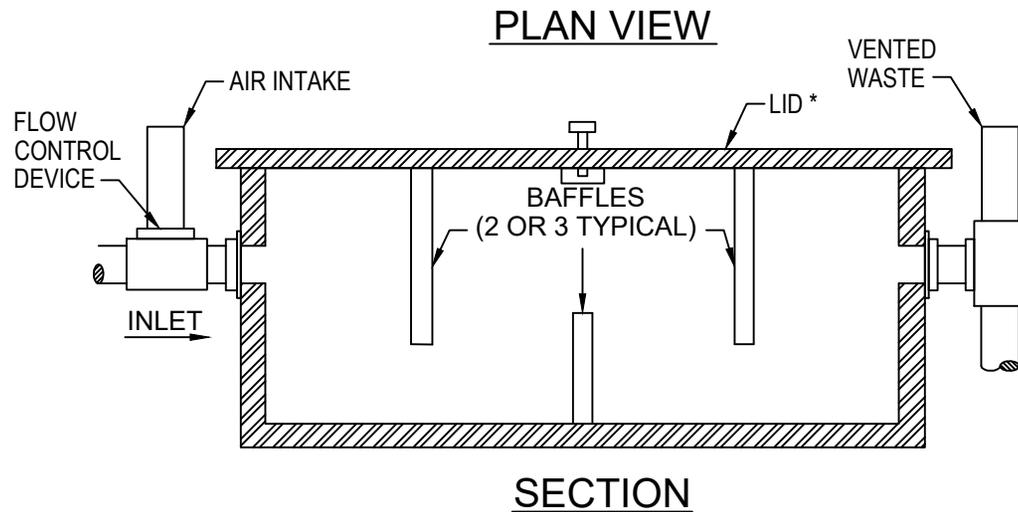
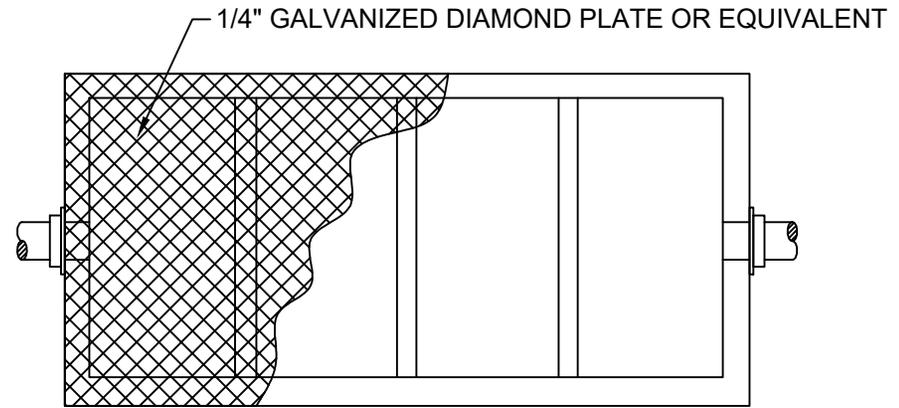
**SIDE SECTION VIEW**

450-1.DWG 07/30/20 - 03:44pm

DATE: July '20		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	TYPICAL GRAVITY/SOLIDS INTERCEPTOR	DETAIL NO. 450-1
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**NOTES:**

1. PERFORMANCE STANDARDS: MUST BE CERTIFIED PER (PDI) G-101 / ASME A112.14.3 / CSA B481 OR MOST CURRENT REVISIONS .
2. A FLOW CONTROL DEVICE MUST BE INSTALLED TO MANUFACTURES' SPECIFICATION ON THE INLET PIPE PRIOR TO ENTERING THE HYDROMECHANICAL GREASE INTERCEPTOR (HGI). FLOW CONTROL MUST BE ACCESSIBLE FOR MAINTENANCE.
3. HGI MAY BE INSTALLED ABOVE GROUND OR BELOW FLOOR GRADE.
4. HGI MUST BE EASILY ACCESSIBLE FOR INSPECTION AND MAINTENANCE.
5. FILL WITH CLEAN WATER PRIOR TO START UP.
6. HGI MUST BE INSPECTED PRIOR TO BACKFILL BY EPCOR PRETREATMENT COORDINATOR.
7. USE AND SIZE TO BE APPROVED BY EPCOR PRETREATMENT- INSPECTED BY PRETREATMENT COORDINATOR.
9. PROPER AIR CONTROL IS CRITICAL TO THE OPERATION OF AN HGI. AIR INTAKE ON THE INLET AND VENTED WASTE ON THE OUTLET.
10. CONTACT EPCOR PRETREATMENT AT [PRETREATMENT@EPCOR.COM](mailto:PRETREATMENT@EPCOR.COM) FOR SHOP DRAWING SUBMITTAL AND INSPECTION/TESTING.



\* LID MUST BE CAPABLE OF SUPPORTING ANTICIPATED LOADS

450-2.DWG 07/30/20 - 03:44pm

DATE:  
July '20



2355 W Pinnacle Peak Rd, Ste 300  
Phoenix, AZ 85027  
P 623.445.2400 F 623.587.1044

TYPICAL HYDROMECHANICAL  
GREASE INTERCEPTOR (HGI)

DETAIL NO.  
450-2

RECLAIMED WATER  
DO NOT DRINK  
NO TOMAR

VALVE TAG:

3"x8"x $\frac{3}{16}$ " PURPLE POLYETHYLENE PLASTIC WITH  
MINIMUM  $\frac{1}{2}$ " HIGH BLACK LETTERING IN ACCORDANCE  
WITH M.A.G. SECTION 616. TAG TO BE ATTACHED WITH  
STAINLESS STEEL WIRE.

IDENTIFICATION DECAL:

5"x16"x $\frac{3}{16}$ " PURPLE POLYETHYLENE PLASTIC WITH  
MINIMUM 1" HIGH BLACK LETTERING IN ACCORDANCE  
WITH M.A.G. SECTION 616. DECAL TO BE ATTACHED WITH  
AN EPOXY ADHESIVE.

600-1.DWG 07/30/20 - 03:44pm

DATE:

July '20



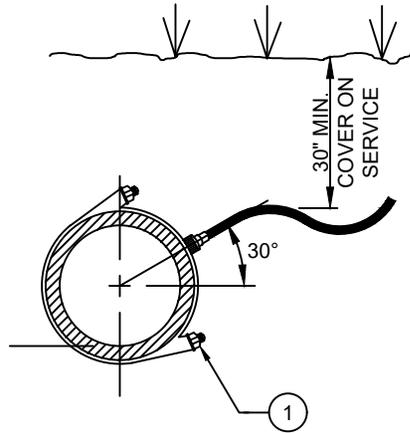
2355 W Pinnacle Peak Rd, Ste 300  
Phoenix, AZ 85027  
P 623.445.2400 F 623.587.1044

RECLAIMED WATER  
ID TAG AND DECAL

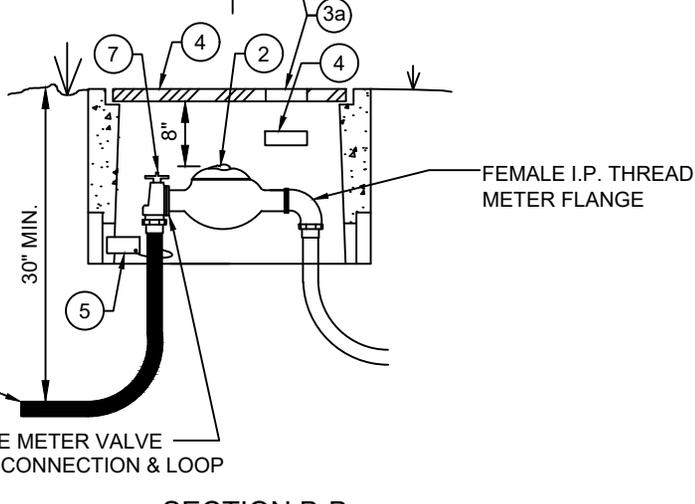
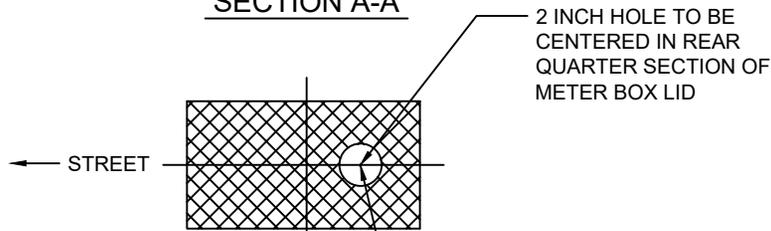
DETAIL NO.

600-1

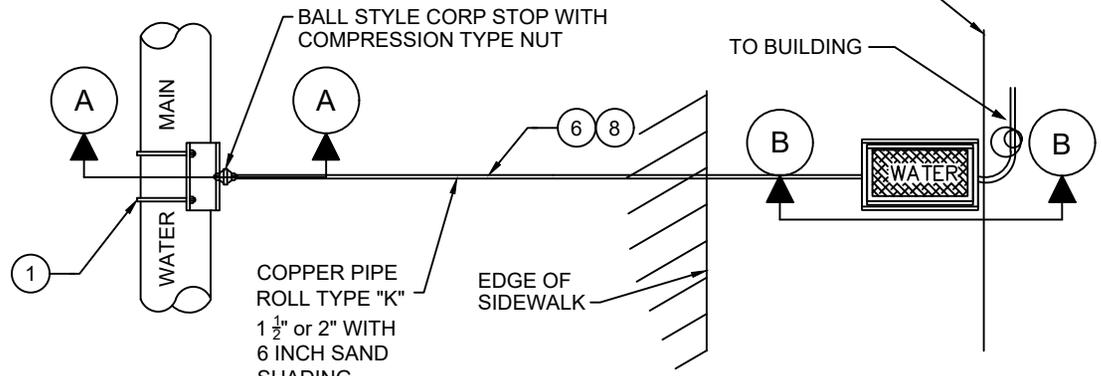
ALL SERVICES



SECTION A-A



SECTION B-B



PLAN VIEW

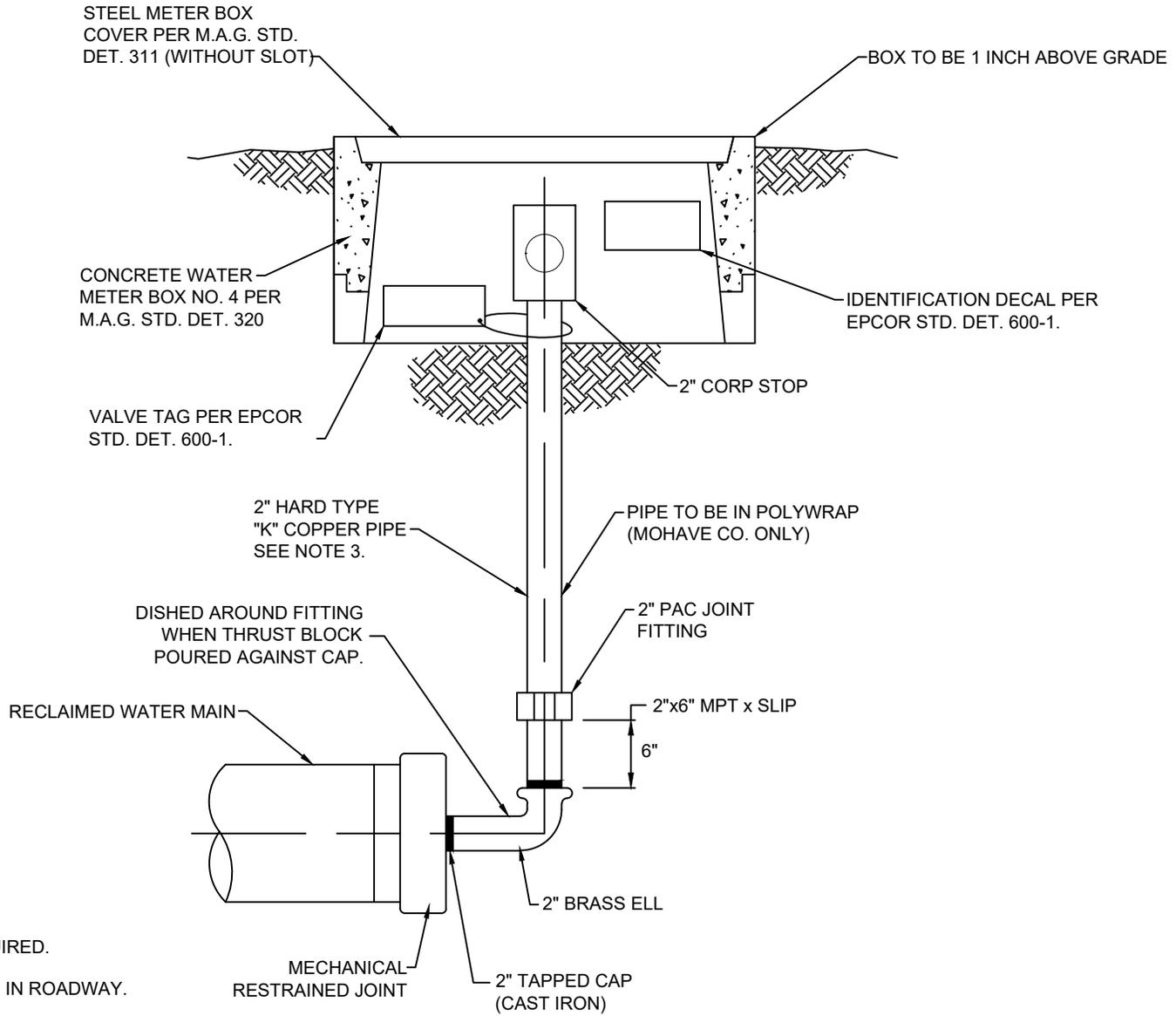
NOTES:

1. SEE EPCOR STD. DET. 100-3 FOR APPROVED SADDLES.
2. METER TO BE SET BY EPCOR UPON PAYMENT OF FEES.
3. CONCRETE METER BOX PER M.A.G. STD. DET. 320 BOX NO. 2 OR 4 W/ STEEL LID W/ 2 INCH DIAM. OPENING TO BE SET PERPENDICULAR TO BACK OF WALK OR CURB. BOX TO MATCH SLOPE OF FINISH GRADE AND SET 1" ABOVE FINISH GRADE OR BACK OF WALK OR CURB. (3a) 2 INCH DIAMETER OPENING.
4. IDENTIFICATION DECAL PER EPCOR STD. DET. 600-1.
5. VALVE TAG PER EPCOR STD. DET. 600-1.
6. RECLAIMED LINE COPPER PIPE TO BE WRAPPED WITH PURPLE POLYETHYLENE TAPE.
7. ANGLE BALL METER VALVE TEE HEAD TO BE STAMPED "RECLAIMED WATER".
8. CAL WESTERN INC TYPE CAL102 PURPLE POLY SLEEVE REQUIRED IN MOHAVE COUNTY ONLY. TRACER WIRE REQUIRED ON TOP OF SLEEVE.

610-1.DWG 07/30/20 - 03:44pm

DATE:	<b>July '20</b>	<b>EPCOR</b>	2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	<b>RECLAIMED WATER SERVICE CONNECTION</b>	DETAIL NO. <b>610-1</b>
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**NOTES:**

1. NO SOLDERED JOINTS
2. CARSONITE MARKER REQUIRED.
3. SOFT COPPER TO BE USED IN ROADWAY.

630-1.DWG 07/30/20 - 03:44pm

DATE: July '20		2355 W Pinnacle Peak Rd, Ste 300 Phoenix, AZ 85027 P 623.445.2400 F 623.587.1044	<b>RECLAIMED WATER CURB STOP (BLOW OFF) WITH FLUSHING PIPE</b>	DETAIL NO. 630-1
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