



DANIEL HORRIGAN, MAYOR

CITY OF AKRON
DEPARTMENT OF PUBLIC SERVICE
WATER SUPPLY BUREAU

AKRON WATER WORKS

STANDARD CONSTRUCTION DRAWINGS AND SPECIFICATIONS

DANIEL HORRIGAN, MAYOR
JOHN O. MOORE, SERVICE DIRECTOR
JEFFREY BRONOWSKI, BUREAU MANAGER

Revised Date: 7/06/18

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CITY OF AKRON
PUBLIC SERVICE DEPARTMENT
WATER SUPPLY BUREAU

**MINIMUM PLAN SUBMITTAL REQUIREMENTS
PROJECT REVIEW**

NOTICE:

Akron Water Works (AWW) Rules and Regulations shall apply for all project review including AWW Standard Construction Drawings and Specifications, subject to change or as revised without prior notice.

Building permit will not be released until all drawings have been received with all corrections made and the complete set of plans are approved, including fire protection drawings (see Exception Note No. 5).

The following requirements and notes are not intended as a complete list of AWW Rules and Regulations, but to be used as a guide to clarify some of the minimum information necessary for plan review.

1. Parking Lots/Landscaping/Signage/Miscellaneous Projects
 - A. Site Plan
 - B. Landscape Plan
 - C. Lawn Irrigation - with meter and backflow preventer shown
 - D. Underground Utilities Plan - includes private fire hydrants
2. Building Remodeling and/or Alterations (interior construction only)
 - A. Site Plan⁽¹⁾
 - B. Floor Plan
 - C. Plumbing/Mechanical Plans
 1. Plan and Isometric View - existing and proposed fixtures⁽²⁾
 2. Plan and Section View - existing and proposed meter setting and backflow preventer⁽³⁾
 - D. Fire Protection Plan
3. New Building Construction, Expansion and/or Additions
 - A. Site Plan
 - B. Utilities Plan
 - C. Lawn Irrigation
 - D. Plumbing/Mechanical Plans⁽⁴⁾
 1. Plan and Isometric View - existing and proposed fixtures⁽²⁾
 2. Plan and Section View - existing and proposed meter settings and backflow preventers
 - E. Fire Protection Plans⁽⁵⁾

NOTES:

- (1) The site plan requirement may be waived in most cases as determined by AWW. A complete address with the property owner's name may be substituted.
- (2) The existing fixtures plan may be waived as determined by the AWW, where it is impractical for large commercial/industrial type buildings with extensive piping systems.
- (3) The existing meter setting and backflow preventer drawings may not be required, as determined by the AWW if there is an existing backflow preventer and it has been tested within the last year and the report is on file. For projects with existing backflow preventers that have not been tested within the last year, retest and send in test report to the Backflow Program. Projects that require new backflow preventers shall be shown on the plans with existing and/or proposed meter settings. Label all pipe, fittings, make/model, size and type of all assemblies.
- (4) Shall include existing and/or proposed meter settings and backflow preventers detailing the following items:
 - A. Meter vault or interior water entry detail with meter setting.
 - B. Label size/type of meter, backflow preventer, piping, including valves and fittings.
 - C. Show distances and dimensions to walls, floor, drains, etc.
 - D. Width, length, ceiling height of interior mechanical room or meter vault.
- (5) Interior fire sprinkler drawings may be submitted at a later date for only those projects that require a new water service installation. The building permit will be conditionally released subject to receipt of the sprinkler drawings. Plans must be received for review and approval prior to the service installation.



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PUBLIC SERVICE DEPARTMENT
WATER SUPPLY BUREAU

WATER SERVICE AND FIRELINE NOTES

No water service will be installed until all requirements of the Akron Water Works are met, including but not limited to the following:

1. Review and approval of all building plans.
2. Receipt of the applicable fees.
3. Approval of the houseline installation and appurtenances.
4. Approval of the fire system which includes review and approval of sprinkler plans.

All on-site water line piping and appurtenances shall be installed according to Water Department specifications and must be inspected and approved by the Water Distribution Division (375-2420) prior to backfilling.

All underground pipe 2 inches and smaller shall be Type "K" soft copper with flared fittings. Compression fittings may be used on 1 1/2 inch and 2 inch pipe. All brass fittings used shall be lead free per NSF61-G. Pipe shall be installed with 4 feet 6 inches of cover.

All underground straight lengths of pipe larger than 2 inches shall be Class 53 cement lined ductile iron with push-on joints. Pipe shall be installed with 4 feet 6 inches of cover. See detailed specifications for approved pipe, fittings, bolts, etc., for water line installation (Acc. #14908).

Maintain a 10 foot horizontal clearance from edge of water line to edge of sanitary and storm sewer pipes.

Maintain an 18 inch minimum vertical clearance from edge of water line to edge of sanitary and storm sewer pipes where the cross.

Maintain a 12 inch vertical clearance from edge of water line to edge of gas, electric, etc.

Maintain a 5 foot minimum horizontal clearance from edge of water line to edge of gas line(s), electric line(s), communication line(s), etc.

Requirements for an Inside Meter Setting:

1. Easily accessible
2. Adequate headroom
3. Properly heated
4. Floor drain within five feet of meter
5. Houseline not longer than 200 feet
6. Meter must be set within one foot of where line enters building.
7. In buildings with interior meter setting without basements, houseline must be installed in an AWW approved Schedule 40 conduit from a minimum of one foot outside footer to 1" above floor slab (houseline 2 inch and smaller).
8. Buildings with interior meter settings not on outside wall, the houseline must be installed in a continuous AWW approved Schedule 40 conduit from a minimum of 1 foot outside building footer up through floor slab 1 inch (houseline 2 inch and smaller).
9. Houseline installed under paved areas for inside meter setting must be in an AWW approved Schedule 40 casing.

If the interior meter setting does not meet all the above requirements, then the meter must be installed at the street in a curb meter pit or an approved above ground heated enclosure.



APPROVED PIPE, FITTINGS, BOLTS, ETC. FOR AKRON SYSTEM WATER LINE INSTALLATIONS

Pipe:	Class 53 ductile iron per AWWA C151 specifications, with cement-lining per AWWA C104, labeled polyethylene encasement per AWWA C105 is required.
Pipe Joints:	Push-on joints (Tyton, Fastite, etc.), per AWWA C151 specifications with plain or restraining rubber gaskets per AWWA C111 specifications.
Fittings:	Class 350 ductile iron compact fittings per AWWA C153 or full thickness castings per AWWA C110 are acceptable, with mechanical joint ends and ductile iron follower glands. Anchor pipe is required on all hydrant runs between the tee and hydrant run valve. Anchor tee may be substituted provided there is no conflict with valve location Refer to Hydrant detail Page 23.
Restrained pipe systems:	Push-on joint with Field Lock (4 through 16 inch only), Sure Stop 350 (3 through 16 inch only), or Fast Grip gaskets (4 through 16 inch only), or mechanical joint with restrained follower glands, and 6 ounce zinc anode caps on every bolt thread. TR Flex or Flex-Ring required on all 16 inch or larger pipe diameters when specified on the plans.
Restrained fitting devices:	All valves, bends, offsets, hydrant inlets, caps, plugs, and branches of tees and wyes must be restrained using mechanical joint with restrained follower glands or restraining gaskets. All threads with ductile iron lugs are required on all vertical bends and /or as required by the engineer. Hardwood blocking is required for all diameters 4 through 8 inch, concrete blocking and strapping for all diameters 12 inches and larger. Concrete blocking is required on all fire lines and on all diameters in areas over 100 psi. Restrained joints for diameters 12 inches and under shall use Field-Lock or Fast-Grip restraining gaskets or mechanical joint with restrained follower glands. All ductile iron water mains shall be restrained for a length of 30 feet on each side of a valve, bend or offset using mechanical joint with restrained follower glands.
Mechanical Joint T-head Bolts:	All mechanical joints shall be made with Cor-Ten or construction-grade alloyed ductile iron T-head bolts. T-head bolts shall be ½ inch longer than standard length and must include a 6 oz. zinc anode cap on every bolt thread.
Hydrants:	Akron-style Mueller "Centurian" Model A423, Kennedy "Guardian" Model K-81A, East Jordan CD250, American Flow Control Model B62B with 6 inch inlet or American Flow Control Model B84B with 8 inch inlet. Threads shall be Akron style as shown on Akron Water Works Standard Construction Drawings F-3258 and F-3440. Hydrants must be lead free per NSF61-G.
Gate Valves:	Resilient-seat wedge (RSW) valves with restrained mechanical joints. Valves shall have non-rising stems and shall open to the right (clockwise).
Butterfly Valves, 16 Inch and up:	Restrained mechanical joint. Rubber seals in the valve must be replaceable. Flanged end or wafer-style valves are not acceptable.
Valve Boxes:	Only Bibby, Tyler, East Jordan, or Star (heavy duty only), brands acceptable for compatibility.
Curb Boxes:	Riser pipe must be of yology corrosion resistant material. Plug must be cast iron and threaded into a brass ring.

WE RECOMMEND FOR A HOME OF AVERAGE SIZE THESE PIPE SIZES TO SUPPLY WATER FIXTURES

WATER FIXTURES

SILL FAUCET (HOSE)	3/4"
SINK	1/2"
LAVATORY	1/2"
LAUNDRY TRAY	1/2"
HOT WATER TANK	3/4"
BATH TUB	1/2"
SHOWER BATH	1/2"
SHOWER BATH - NEEDLE TYPE	3/4"
WATER CLOSET - TANK TYPE	1/2"
WATER CLOSET - FLUSHOMETER	1"
URINAL - TANK TYPE	1/2"
URINAL - FLUSHOMETER TYPE	3/4"

RISER OR RUNS SERVING 2 FIXTURES	3/4"
RISERS OR RUNS SERVING 3 OR MORE FIXTURES	1"
RISERS OR RUNS SERVING FLUSHOMETER VALVE	1"
BASEMENT SUPPLY LINE	1"
TYPE "K" HOUSE LINE	1"

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Department of Public Service - Water Supply Bureau

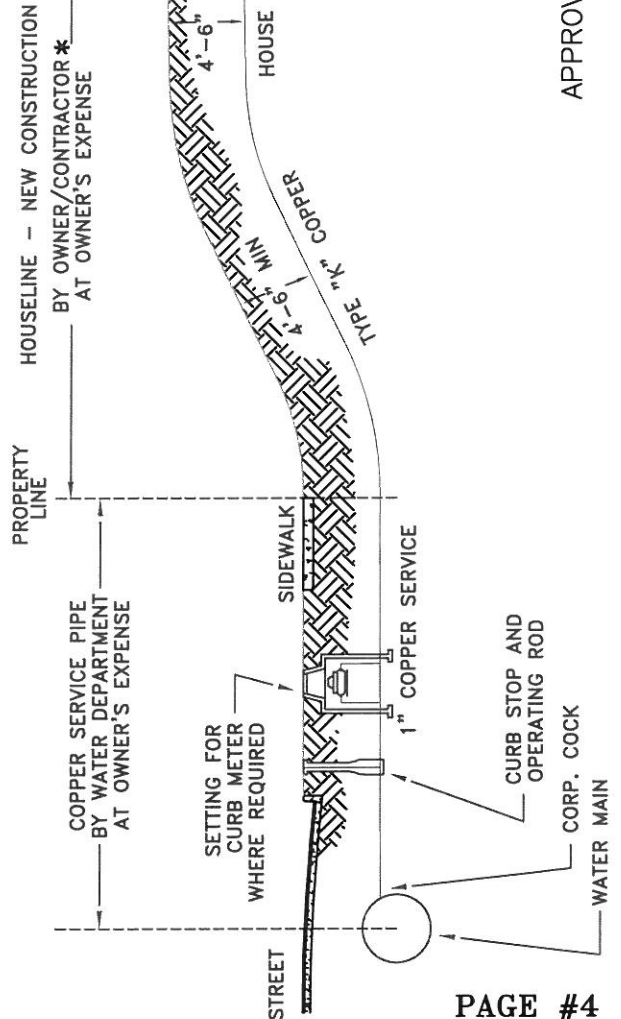
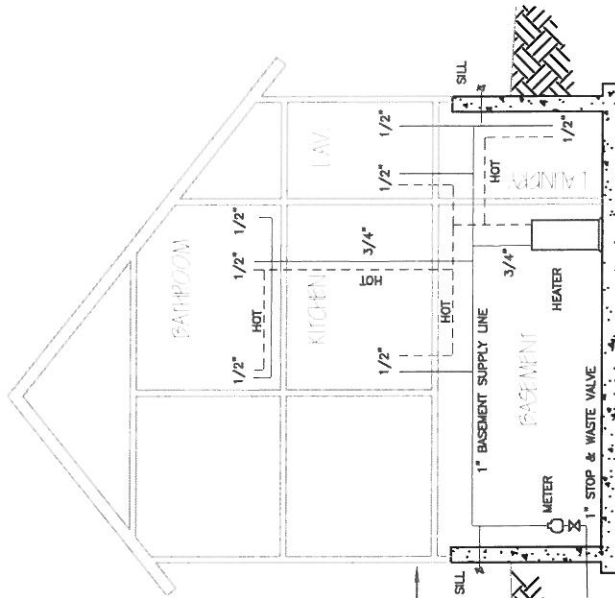
Jeffrey Bronowski P.E. - Bureau Manager

RECOMMENDED PIPE SIZES

REVISED BY CAS 3/17

REDRAWN AND REVISED FROM ORIG. ACC.B-12967

NOT TO SCALE



* THE OWNER/CONTRACTOR PORTION OF WORK MUST BE INSTALLED AND INSPECTED FOR APPROVAL BY WATER DEPARTMENT PERSONNEL PRIOR TO BACK FILLING AND THE SERVICE INSTALLATION

APPROVED

Jeffrey Bronowski
UTILITIES ENGINEER

4-12-17

DATE

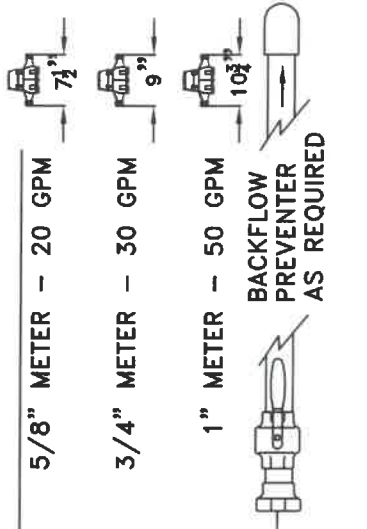
PAGE #4

2017-009-04



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MAXIMUM FLOW RATES & DIMENSIONS:



BUILDING WALL

1.0' MINIMUM CLEARANCE FROM WALL TO METER

1.0' MAX. TO METER

DISTANCE BETWEEN BUSHINGS:
 5/8" METER - 11 3/4" SPACE
 3/4" METER - 13 1/4" SPACE
 1" METER - 15" SPACE
 (NEW CONSTRUCTION)

1" TYPE "L" OR "K" COPPER WITH LEAD FREE SOLDER OR SCREW FITTINGS WITH BRASS NIPPLES BEFORE OR AFTER MAIN SHUT-OFF

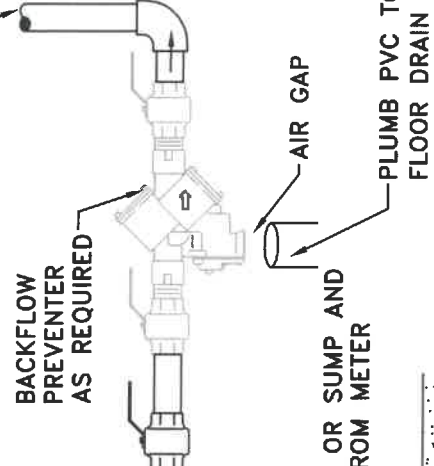
PLAN VIEW

NOTE: STAB AND COMPRESSION FITTINGS AND RIGHT ANGLE VALVES ARE PROHIBITED.

FOR 5/8" METER: 1" SOLDER X 1/2" FEMALE
 3/4" METER: 1" SOLDER X 3/4" FEMALE
 1" METER: 1" SOLDER X 1" FEMALE

MAIN SHUT-OFF FULL-FLOW BALL VALVE SAME SIZE AS HOUSELINE WITH SEALABLE INLET HOLE

METER SPUDS SUPPLIED W/METER (INSTALLED BY CUSTOMER)



WHEN JOINING DISSIMILAR METALS A WATER DEPARTMENT APPROVED BRASS TRANSITION FITTING IS REQUIRED.

1" TYPE "L" OR "K" COPPER
 MAX. HEIGHT 3' FROM FLOOR
 MIN. HEIGHT 1' FROM FLOOR

FINISHED FLOOR

ELEVATION VIEW

MINIMUM AREA REQUIRED FOR METER SETTING 4'W x 6'L x 6'H

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7-24-18

DATE



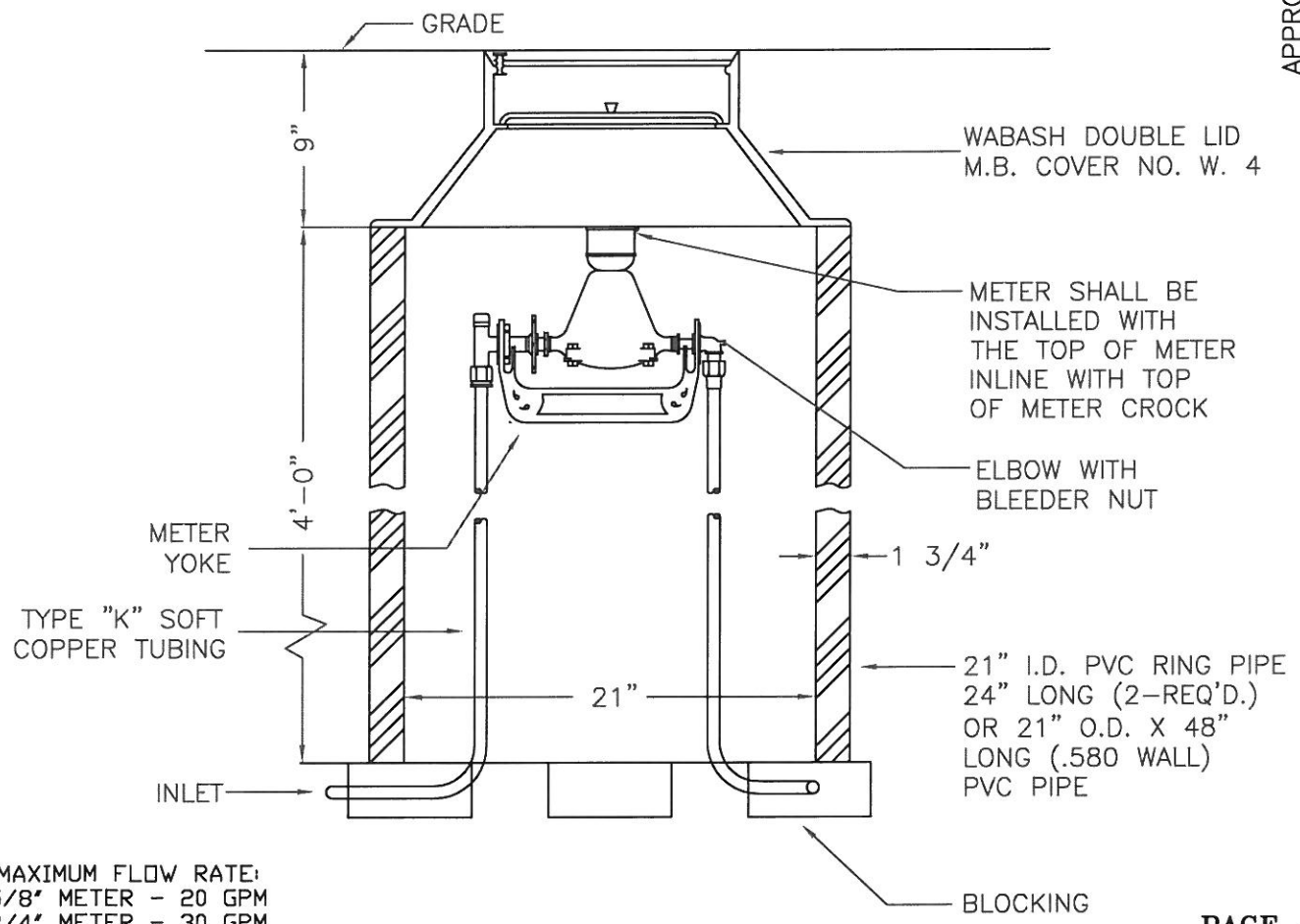
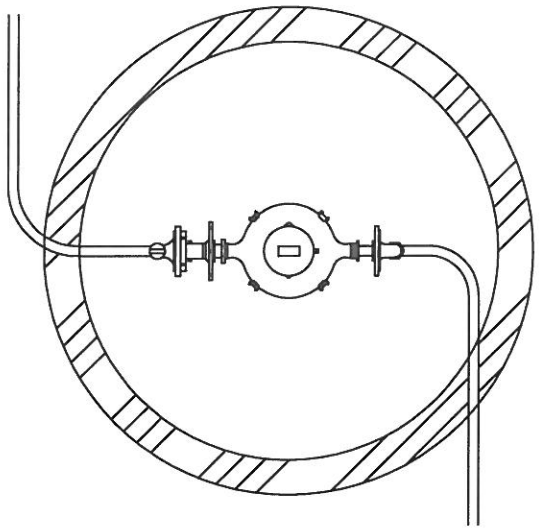
4-12-17

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MAXIMUM FLOW RATE:
 5/8" METER - 20 GPM
 3/4" METER - 30 GPM
 1" METER - 50 GPM

PAGE #6

2017-009-06

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STANDARD 1" CURB METER PIT DETAIL

REVISED BY CAS 3/16

NOT TO SCALE



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NOTE: Manifold Meter Settings permitted on minimum 1" copper service and houseline.

1" minimum "L" or "K" copper with solder or screw fittings with brass nipples for for meter setting.

Hose connection vacuum breakers required on all outside hose bibbs for water only hose connection meters; interior hose bibbs prohibited.

Piping downstream of meter shall be secured to wall or joist.

Pipe size reduction permitted after meter.

DISTANCE BETWEEN FEMALE NPT BUSHING

5/8" METER - 11 3/4" SPACE
 3/4" METER - 13 1/4" SPACE
 1" METER - 15" SPACE

FEMALE NPT BUSHING DIAMETERS

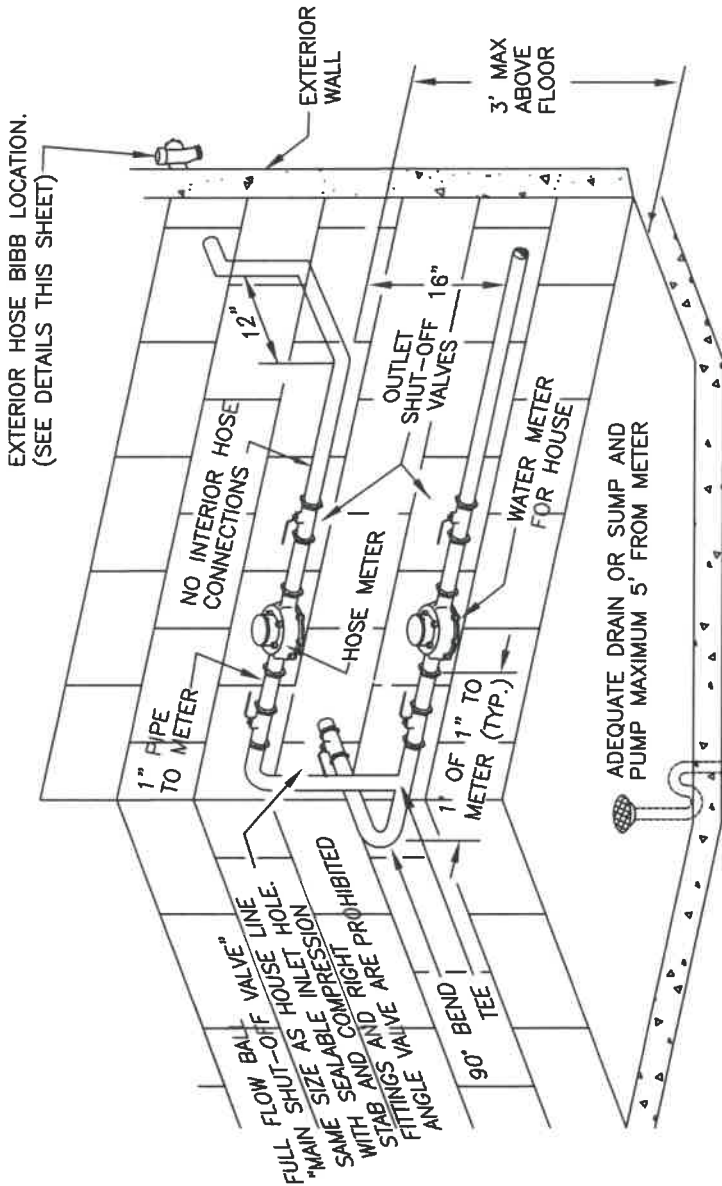
5/8" METER: 1/2"
 3/4" METER: 3/4"
 1" METER: 1"

Minimum area required for meter setting:

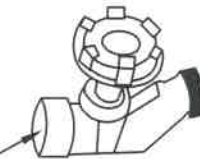
4' W X 6' L X 6' H

MAXIMUM FLOW RATE:

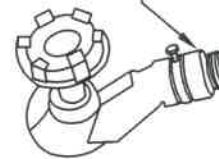
5/8" METER - 20 GPM
 3/4" METER - 30 GPM
 1" METER - 50 GPM



BUILT-IN VACUUM BREAKER



SCREW-ON VACUUM BREAKER ADAPTER



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 7-24-18
 DATE

HOSE BIBB DETAILS

PAGE #7

2017-009-07

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HOSE CONNECTION MANIFOLD

5/8", 3/4", AND 1" P.D. METERS

REVISED BY: CAS 7/18

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NOTE: 1" minimum "L" or "K" copper with solder or screw fittings with brass nipples for for meter setting.

Interior hose bibbs are prohibited.

Piping downstream of meter shall be secured to wall or joist.

Pipe size reduction permitted after meter.

For hose connection manifold, see dwg 2017-009-07

DISTANCE BETWEEN FEMALE NPT BUSHING

5/8" METER - 11 3/4" SPACE
 3/4" METER - 13 1/4" SPACE
 1" METER - 15" SPACE

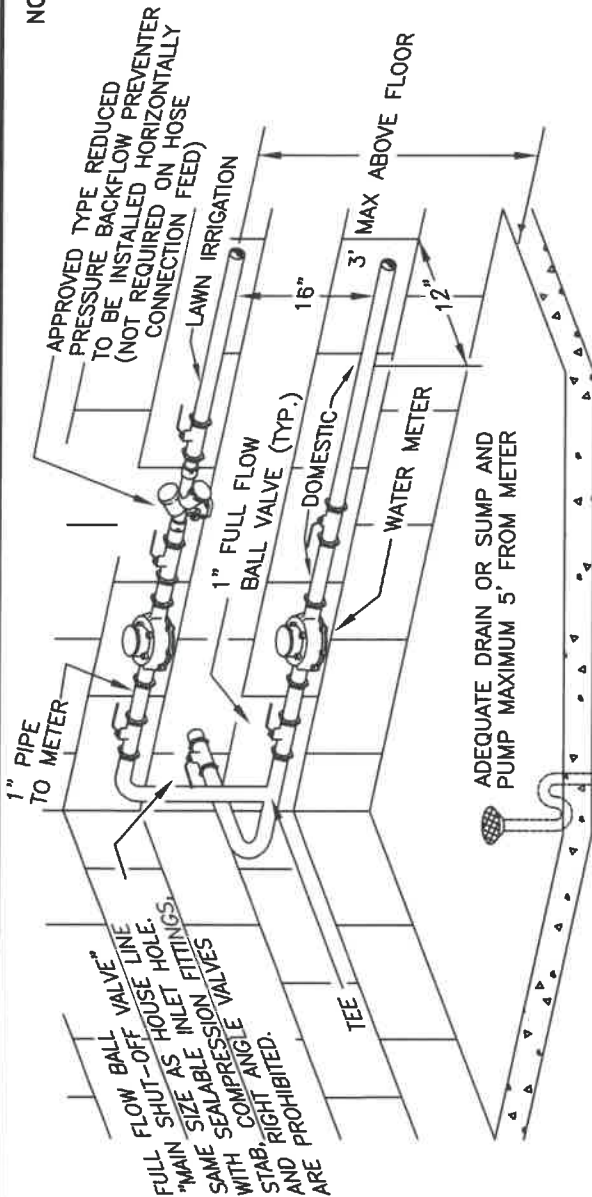
FEMALE NPT BUSHING DIAMETERS

5/8" METER: 1/2"
 3/4" METER: 3/4"
 1" METER: 1"

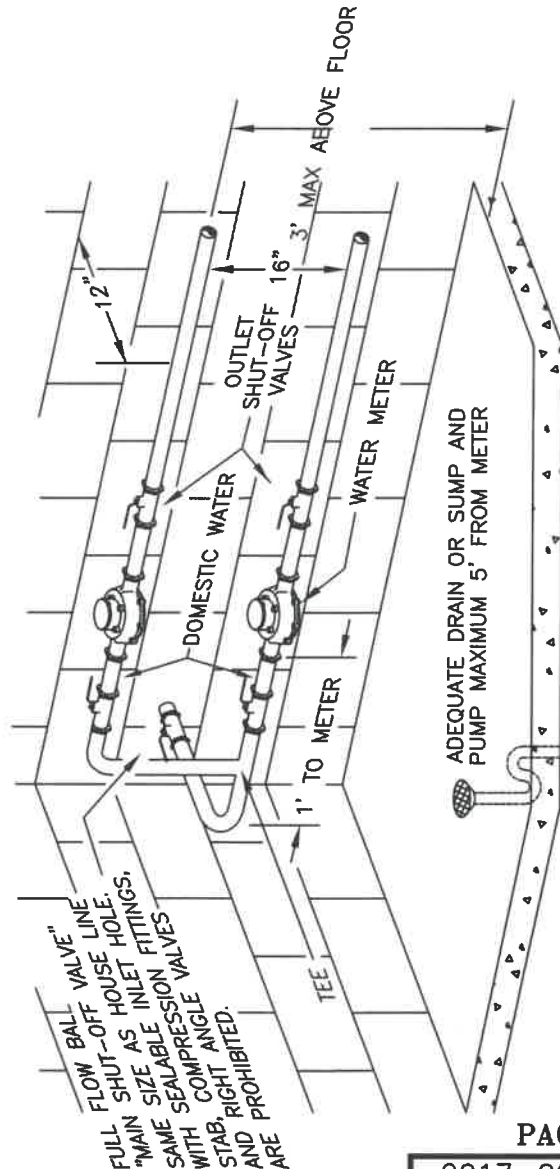
Minimum area required for meter setting:

4' W X 6' L X 6' H

MAXIMUM FLOW RATE:
 5/8" METER - 20 GPM
 3/4" METER - 30 GPM
 1" METER - 50 GPM



MANIFOLD METER SETTING
 LAWN IRRIGATION



APPROVED

MANIFOLD METER SETTING
 DOMESTIC MULTI-UNIT

[Signature]
 UTILITIES ENGINEER
 DATE 7-24-18

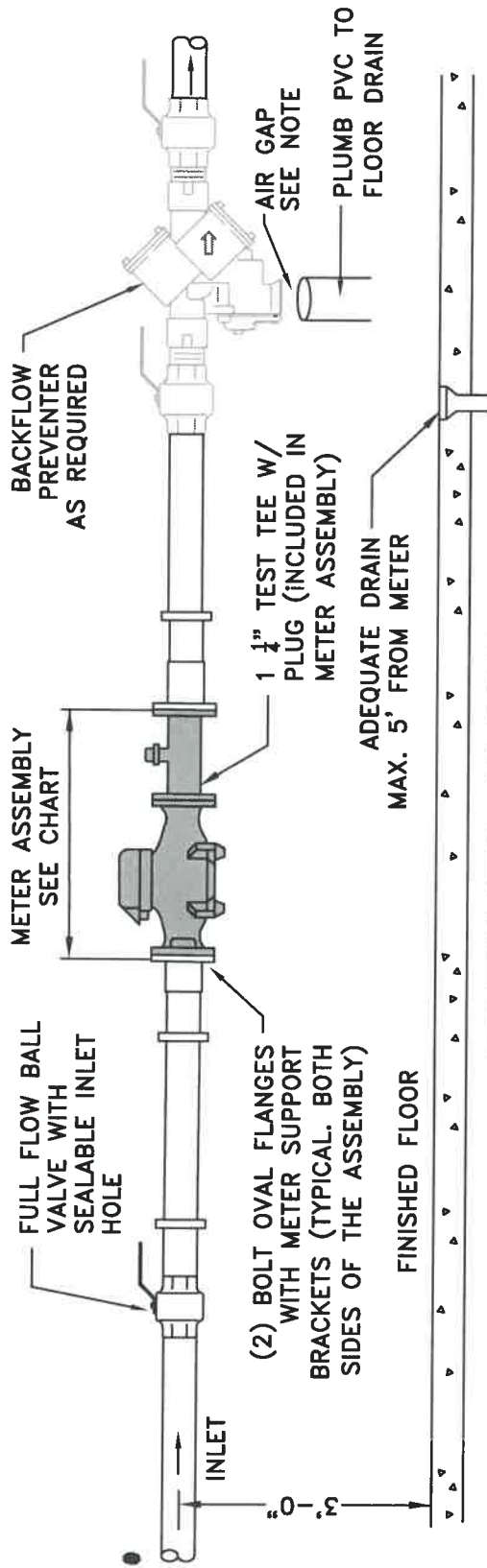
STANDARD MANIFOLD METER SETTING

5/8", 3/4", AND 1" P.D. METERS



METER ASSEMBLY CHART *				
SERV. SIZE	METER LENGTH	TEST TEE LENGTH	TOTAL ASSEMBLY LENGTH	MAX. FLOW RATE
1 1/2"	13"	8"	21"	100 GPM
2"	17"	8"	25"	160 GPM

*ALLOW ADDITIONAL LENGTH FOR STANDARD GASKET PER JOINT.



ELEVATION VIEW

NOTES:
 TYPE "L" OR "K" COPPER PIPE WITH SOLDER, PRESS, OR SCREW FITTINGS WITH A BRASS NIPPLE AND 2 BOLT OVAL COMPANION FLANGE.

WHEN JOINING DISSIMILAR METALS A WATER DEPARTMENT APPROVED BRASS TRANSITION FITTING OR AN ELECTROLYSIS INSULATED FLANGE IS REQUIRED.

THE METER ASSEMBLY WILL BE SUPPLIED BY THE CITY OF AKRON AND PURCHASED BY OWNER.

AN AIR GAP MUST BE MAINTAINED BETWEEN THE RPZ RELIEF VALVE OPENING AND ANY DISCHARGE PIPING. THE AIR GAP MUST BE AT LEAST TWICE THE DIMENSION OF THE SUPPLY PIPE, BUT NEVER LESS THAN 1 INCH.

FOR METER SETTINGS LARGER THAN 2" SEE 2017-009-11 OVAL COMPANION FLANGES SHALL ADHERE TO AWWA STANDARD C701, SECTION 4.3.4

EMERGENCY BYPASS:
 IF A EMERGENCY BYPASS IS DESIRED, THEN A PARALLEL METER MUST BE INSTALLED ACCORDING TO CITY SPECIFICATIONS.

MINIMUM AREA REQUIRED FOR METER SETTING - 4'W x 6'L x 6'H

PROVIDE AN 18" CLEARANCE FROM THE EDGE OF PIPE TO THE WALL OF THE HOTBOX OR BUILDING.

APPROVED

[Signature] *[Signature]* 9-21-18
 UTILITIES ENGINEER DATE

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 Jeffrey Bronowski P.E. - Bureau Manager

STANDARD METER SETTING 1-1/2" AND 2" METERS

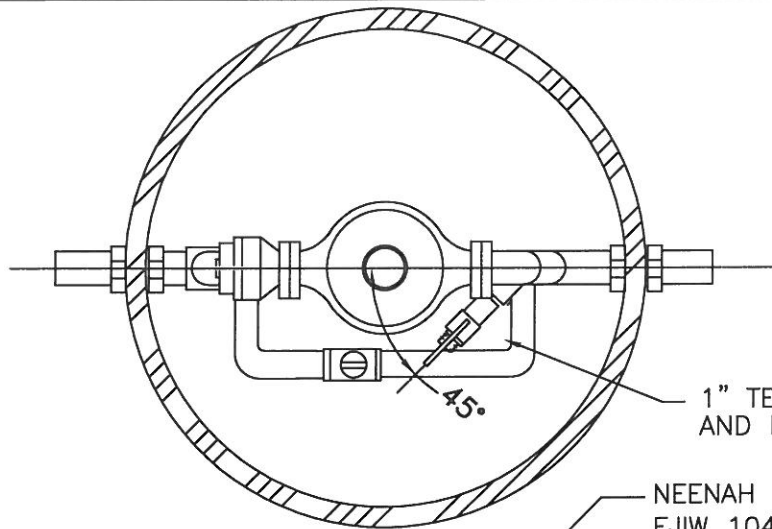


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4-12-17
DATE

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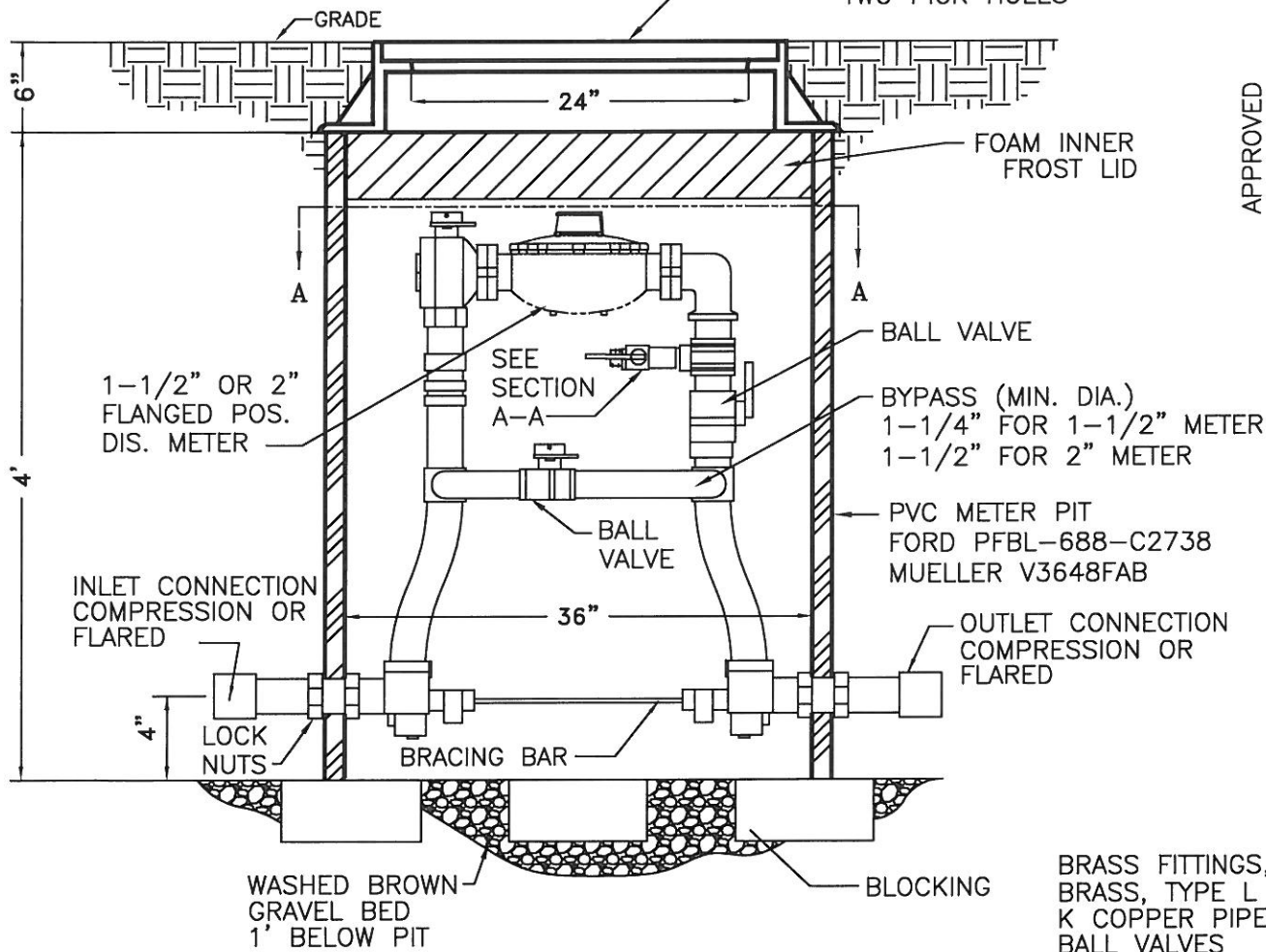
APPROVED



SECTION A-A

1" TEST TEE AND BALL VALVE

NEENAH R-1653-A OR EJIW 1040 FRAME W/ HEAVY DUTY SOLID COVER MARKED "METER" WITH TWO PICK HOLES



BRASS FITTINGS, BRASS, TYPE L OR K COPPER PIPE, BALL VALVES

METER PIT MUST BE INSTALLED BY CONTRACTOR ON OWNER'S PROPERTY, PAGE #10 NOT WITHIN RIGHT-OF-WAY

2017-009-10

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STANDARD FOR 1 1/2" AND 2" METER PIT DETAIL

REVISED BY CAS 3/17

NOT TO SCALE



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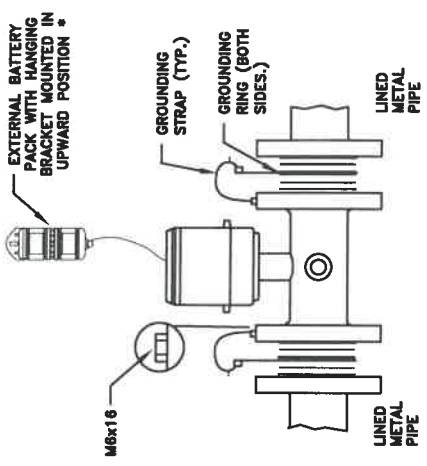
HBMAG ASSEMBLY CLEARANCE CHART

SERV. METER SIZE	METER LENGTH	TEST TEE LENGTH	TOTAL ASSEMBLY LENGTH
3"	7.9"	24"	31.9"
4"	9.8"	24"	33.8"
6"	11.8"	24"	35.8"
8"	13.8"	24"	37.8"
10"	17.7"	24"	41.7"
12"	19.7"	24"	43.7"

MAX. FLOW RATE FOR HBMAG

3"	= 550 GPM
4"	= 880 GPM
6"	= 2200 GPM
8"	= 3465 GPM
10"	= 5500 GPM
12"	= 8800 GPM

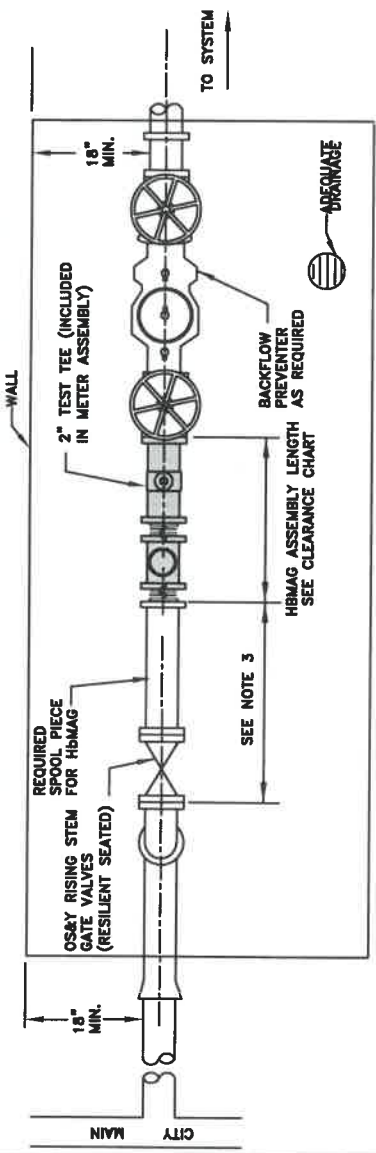
ALLOW ADDITIONAL LENGTH FOR STANDARD GASKETS SPER JOINT.



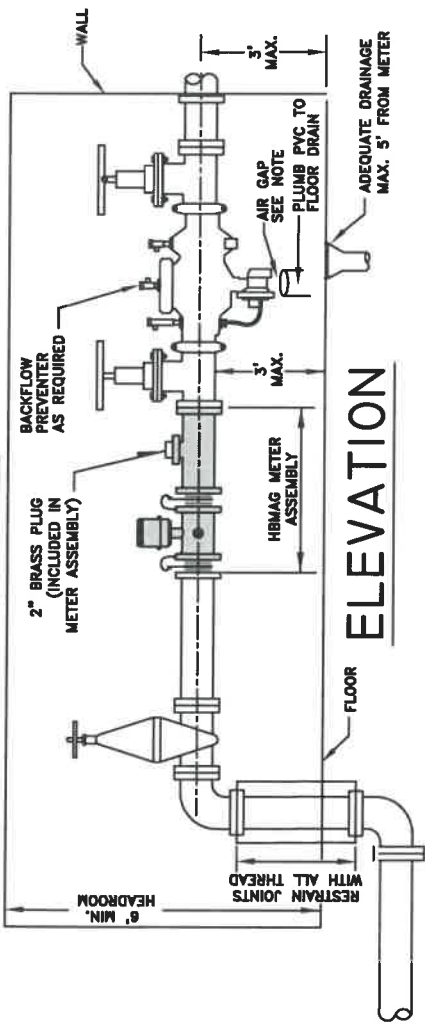
HB MAG METER DETAIL *

NOT TO SCALE
* SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS

[Signature]
UTILITIES ENGINEER
DATE 9-21-18



PLAN



ELEVATION

NOTES: 1. OPTIONAL EMERGENCY BYPASS MAY BE INSTALLED PER CITY OF AKRON SPECIFICATIONS WITH PARALLEL METER AND VALVES.

2. METER SETTINGS SHALL BE DUCTILE IRON WITH FLANGED FITTINGS.

3. THE REQUIRED UPSTREAM SPOOL PIECE LENGTH FOR THE HBMAG IS MINIMUM 5X THE PIPE DIAMETER (INCLUDES LAY LENGTH OF INLET VALVE). UPSTREAM SPOOL TO BE SIZED ACCORDINGLY OR MAY BE ELIMINATED IF STRAIGHT PIPE REQUIREMENT IS MET. THE UPSTREAM PIPE TO BE SIZED AND PROVIDED BY CONTRACTOR.

4. WHEN JOINING DISSIMILAR METALS, A WATER DEPARTMENT APPROVED BRASS TRANSITION FITTING OR AN APPROVED ELECTROLYSIS INSULATED FLANGE IS REQUIRED.

5. WOOD BLOCKING IS PROHIBITED UNDER METER ASSEMBLY.

6. METER SETTINGS FOR 1 1/2" & 2" METERS SEE DWG. 2017-009-09.

7. THE METER AND TEST TEE ASSEMBLY WILL BE SUPPLIED BY THE CITY OF AKRON AND PURCHASED BY OWNER.

8. AN AIR GAP MUST BE MAINTAINED BETWEEN THE RPZ RELIEF VALVE OPENING AND ANY DISCHARGE PIPING. THE AIR GAP MUST BE AT LEAST TWICE THE DIMENSION OF THE SUPPLY PIPE, BUT NEVER LESS THAN 1 INCH.

The City of Akron, Ohio
Department of Public Service - Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager

STANDARD LARGE METER INSTALLATION



FOR 3" AND LARGER SETTING
SEE STANDARD 2017-009-11
FOR 1 1/2"-2" SETTING
SEE STANDARD 2017-009-09
FOR 5/8", 3/4", 1" SETTING
SEE STANDARD 2017-009-05

NOTE: ALL VALVES WITHIN METER AND BACKFLOW ASSEMBLIES SHALL BE OS&Y RISING STEM GATE VALVE (RESILIENT SEATED)

NOTE: OPTIONAL EMERGENCY BYPASS MUST BE INSTALLED PER CITY OF AKRON SPECIFICATIONS WITH PARALLEL METER AND VALVES.

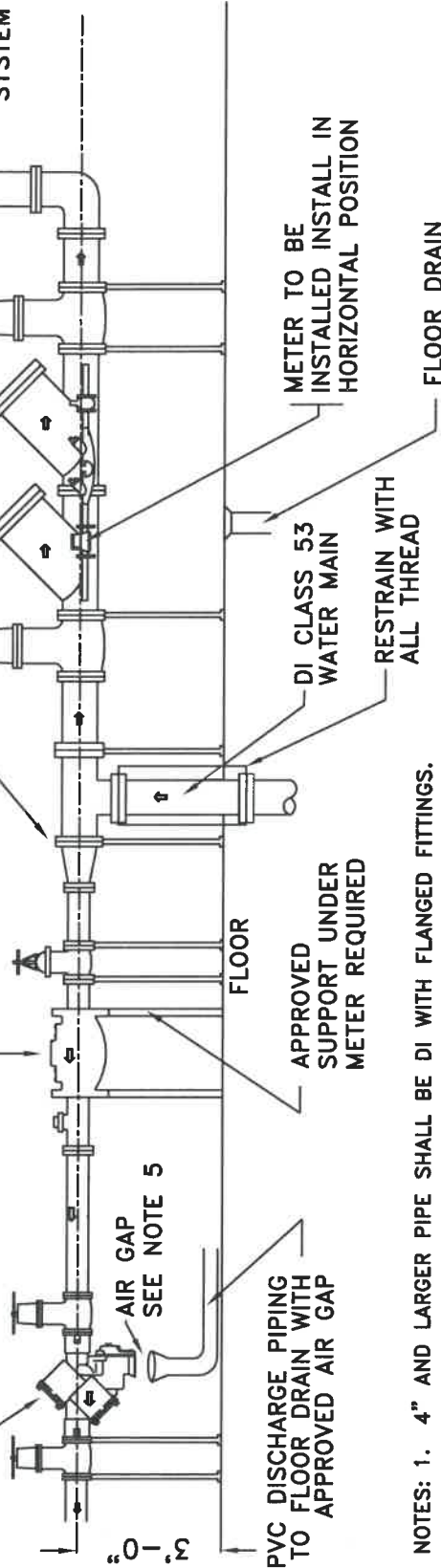
REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER APPROVED BY CITY OF AKRON

DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) APPROVED BY CITY OF AKRON

REDUCER IF REQUIRED OR TAPPED BLIND FLANGE

TO FIRE SYSTEM

TO FIRE DEPARTMENT CONNECTION



NOTES: 1. 4" AND LARGER PIPE SHALL BE DI WITH FLANGED FITTINGS.

2. FIRE SUPPRESSION SYSTEM SHALL BE ALL WATER-NO ADDITIVES.

3. 1-FOOT WALL CLEARANCE FROM ALL PIPING, FITTING, & ASSEMBLIES.

4. DISTANCE A.F.F. OF METER & BACKFLOW ASSEMBLIES NOT TO EXCEED 3'-0".

5. AN AIR GAP MUST BE MAINTAINED BETWEEN THE RPZ RELIEF VALVE OPENING AND ANY DISCHARGE PIPING. THE AIR GAP MUST BE AT LEAST TWICE THE DIMENSION OF THE SUPPLY PIPE, BUT NEVER LESS THAN 1 INCH.

PAGE #12

2017-009-12

STANDARD FIRE & DOMESTIC MANIFOLD SETTING CONVENTIONAL INSTALLATION

The City of Akron, Ohio
Department of Public Service - Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager



DANIEL HARRIGAN, MAYOR

WATER ENTRY DETAIL

NOT TO SCALE

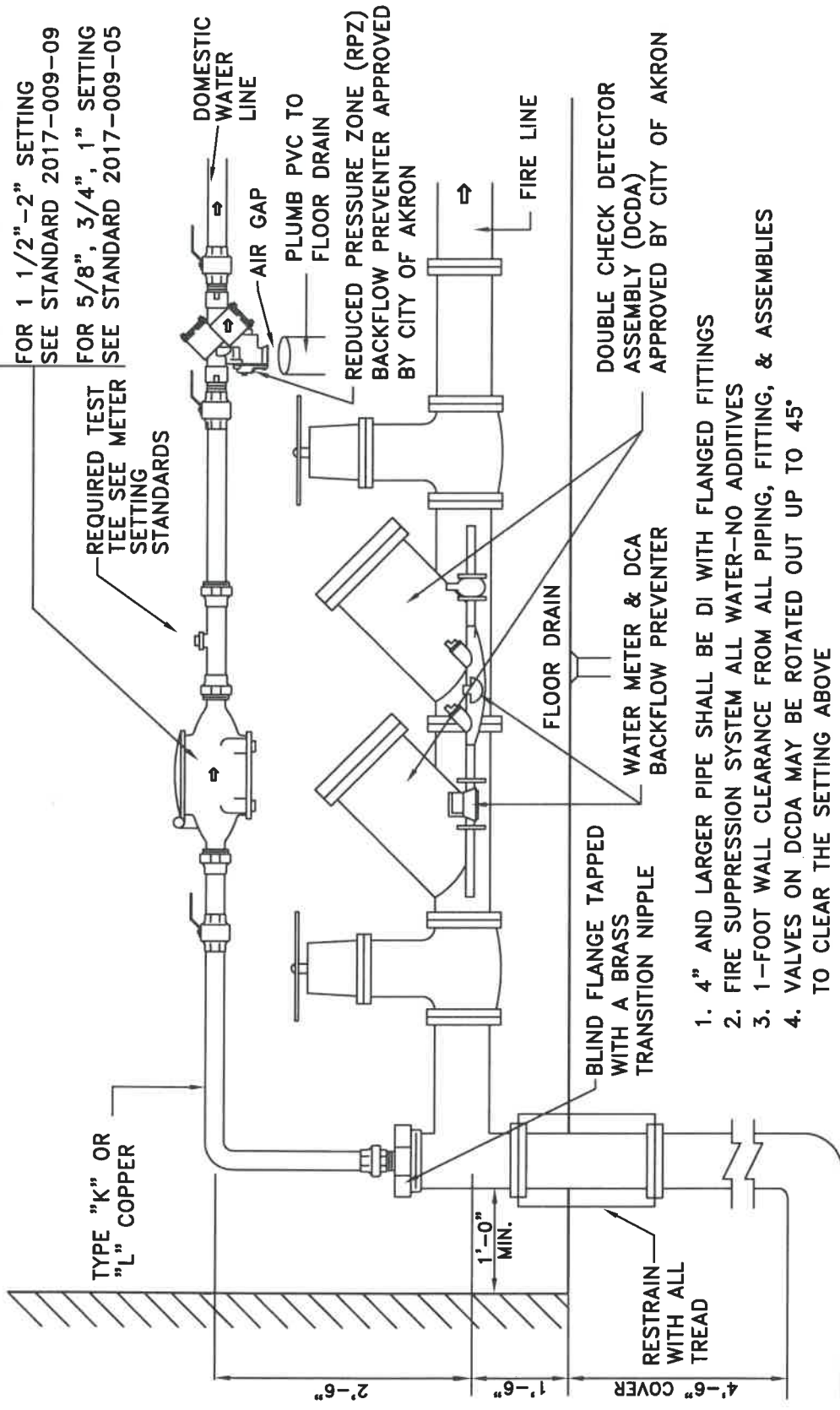
APPROVED

[Signature]
UTILITIES ENGINEER

9-21-18

DATE

FOR 3" AND LARGER SETTING
SEE STANDARD 2017-009-11
FOR 1 1/2"-2" SETTING
SEE STANDARD 2017-009-09
FOR 5/8", 3/4", 1" SETTING
SEE STANDARD 2017-009-05



REQUIRED TEST TEE SEE METER SETTING STANDARDS

TYPE "K" OR "L" COPPER

BLIND FLANGE TAPPED WITH A BRASS TRANSITION NIPPLE

FLOOR DRAIN WATER METER & DCA BACKFLOW PREVENTER

DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) APPROVED BY CITY OF AKRON

REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER APPROVED BY CITY OF AKRON

PLUMB PVC TO FLOOR DRAIN

AIR GAP

DOMESTIC WATER LINE

FIRE LINE

1. 4" AND LARGER PIPE SHALL BE DI WITH FLANGED FITTINGS
2. FIRE SUPPRESSION SYSTEM ALL WATER-NO ADDITIVES
3. 1-FOOT WALL CLEARANCE FROM ALL PIPING, FITTING, & ASSEMBLIES
4. VALVES ON DCDA MAY BE ROTATED OUT UP TO 45° TO CLEAR THE SETTING ABOVE
5. AN AIR GAP MUST BE MAINTAINED BETWEEN THE RPZ RELIEF VALVE OPENING AND ANY DISCHARGE PIPING. THE AIR GAP MUST BE AT LEAST TWICE THE DIMENSION OF THE SUPPLY PIPE, BUT NEVER LESS THAN 1 INCH.

D.I. CLASS 53 WATER MAIN

WATER ENTRY DETAIL

NOT TO SCALE
APPROVED

[Signature]
UTILITIES ENGINEER
DATE 9-21-18

ALL VALVES WITHIN METER AND BACKFLOW ASSEMBLIES 4" & LARGER - OS&Y RISING STEM GATE VALVE (RESILIENT SEATED)

The City of Akron, Ohio
Department of Public Service - Water Supply Division
Jeffrey Bronowski P.E. - Bureau Manager

STANDARD FIRE & DOMESTIC MANIFOLD SETTING STACKED INSTALLATION

REVISED BY CAD 9/18



DANIEL HARRIGAN, MAYOR

STD. SURFACE VAULT SIZE	TOP SLAB		SIDEWALL		FLOOR			
	T	STEEL	L1	L2	S	STEEL	T	STEEL
11/2'x2'x2'	8"	#508"E.W.-B #508"-T+	12"	16"	6"	#508"E.W.	6"	#508"E.W.-T #508"-B+
4'x6'	8"	#505"E.W.-B #508"-T+	16"	26"	6"	#508"E.W.	6"	#508"E.W.-T #508"-B+
6'x10'	8"	#505"E.W.-B #508"-T+	19"	31"	6"	#508"E.W.	6"	#508"E.W.-T #508"-B+
8'x12'	8"	#504"E.W.-B #508"-T+	24"	38"	6"	#508"E.W.	6"	#508"E.W.-T #508"-B+
8'-4"-15	8"	#503"E.W.-B #508"-T+	26"	43"	6"	#508"E.W.	6"	#508"E.W.-T #508"-B+
SPECIAL 10'x17'	8"	#503"E.W.-B #508"-T+	26"	43"	6"	#508"E.W.	6"	#508"E.W.-T #508"-B+

CONCRETE THICKNESS & MIN. STEEL REQUIREMENTS

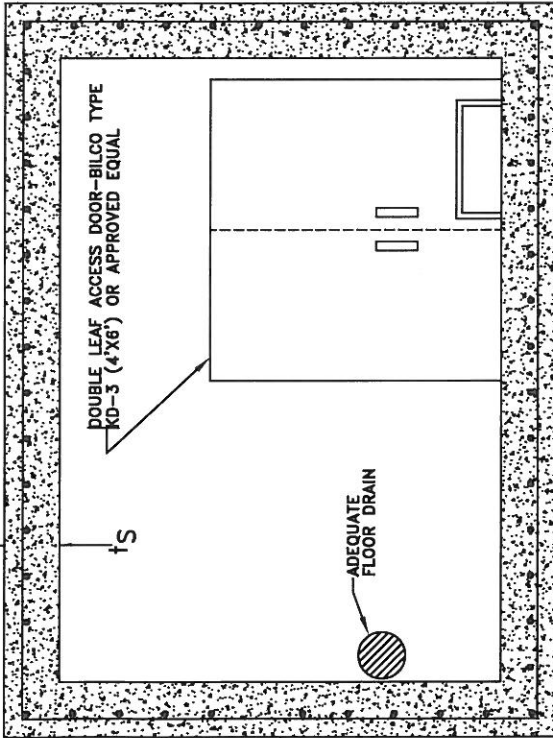
CONCRETE STRENGTHS
-4500 PSI

STEEL YIELD
STRENGTH-60,000 PSI

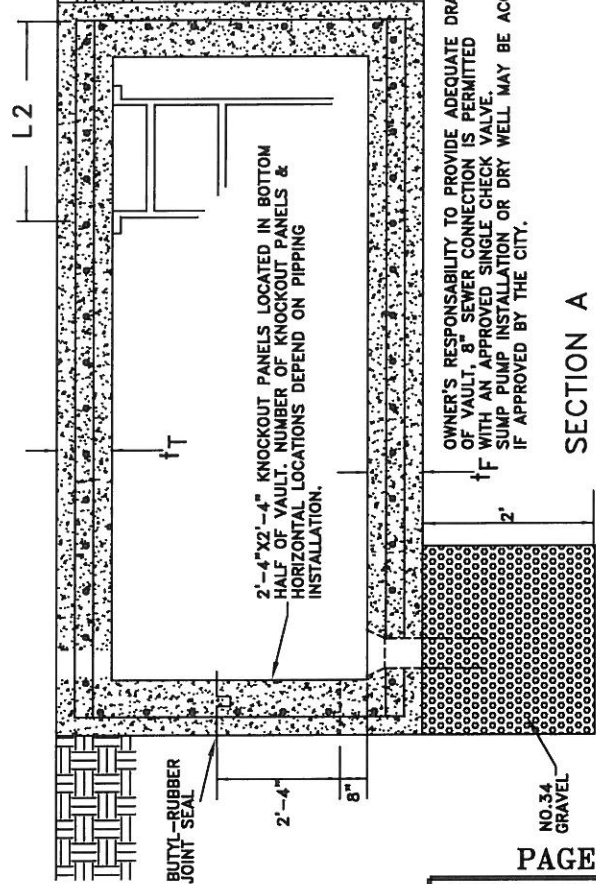
VAULT DESIGNED FOR
AASHTO HS20 LIVE
LOAD.

= INSIDE DIMENSION
** B-BOTTOM SLAB T-TOP SLAB
+STEEL IS EXTENDED FROM WALLS
L1 & L2 FOR FLOOR SAME AS FOR TOP SLAB
COVER ON ALL REBAR SHALL BE 1 1/4"

NEW WATER VAULT INSTALLATION PROHIBITED.
ABOVE GROUND ENCLOSURE REQUIRED. SEE
STANDARD 2017-008-15



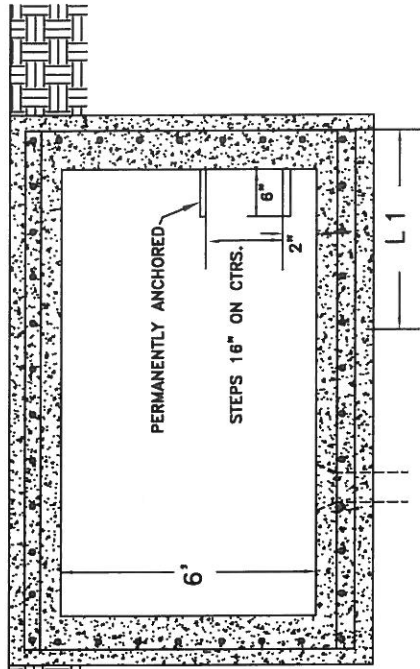
PLAN VIEW



SECTION A

OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE DRAINAGE OF VAULT, 8" SEWER CONNECTION IS PERMITTED WITH AN APPROVED SINGLE CHECK VALVE. SUMP PUMP INSTALLATION OR DRY WELL MAY BE ACCEPTABLE IF APPROVED BY THE CITY.

***VAULT SHALL BE LOCATED IN A NON TRAFFIC BEARING AREA. SHOULD INSTALLATION CONDITIONS CHANGE FROM NON-TRAFFIC BEARING TO TRAFFIC BEARING, OWNER SHALL BE RESPONSIBLE FOR CHANGING FRAME & COVER TO TRAFFIC BEARING TYPE AND SHALL ASSUME ALL LIABILITY FOR FAILURE TO DO SO.



SECTION B

APPROVED

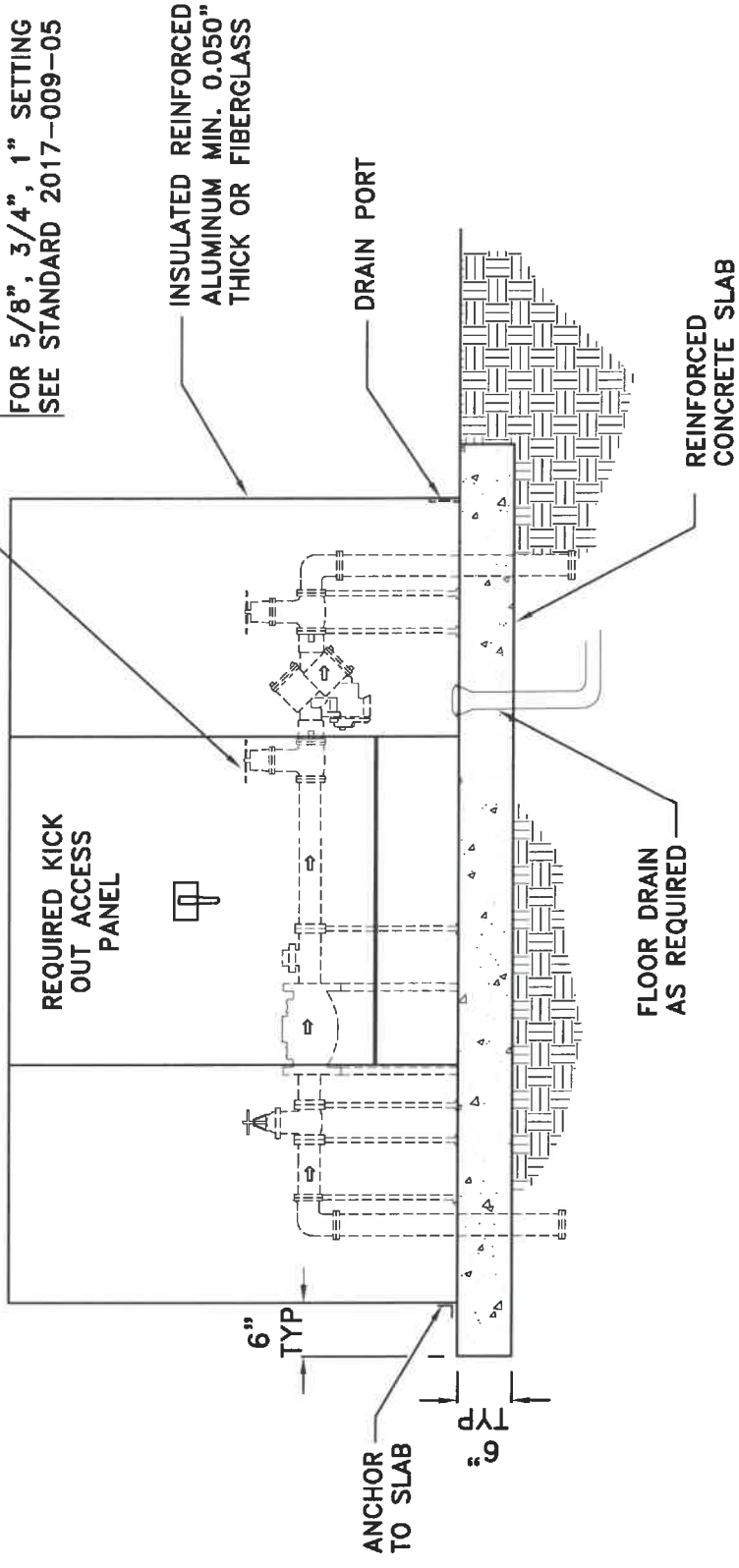
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UTILITIES ENGINEER
DATE 4-12-17



FOR 3" AND LARGER SETTING
SEE STANDARD 2017-009-11

FOR 1 1/2"-2" SETTING
SEE STANDARD 2017-009-09

FOR 5/8", 3/4", 1" SETTING
SEE STANDARD 2017-009-05



- NOTES:
1. ENCLOSURE MUST MEET OSHA 29 CFR 1910.146 AND ASSE 1060
 2. ALL ENCLOSURES INCLUDE A THERMOSTATICALLY-CONTROLLED ELECTRIC POWERED HEATER WITH A GFI.
 3. ENCLOSURE MUST BE A SUFFICIENT SIZE TO HOUSE ALL REQUIRED PIPING.
 4. ENCLOSURE MUST BE LOCKABLE.

ENCLOSURE DETAIL

NOT TO SCALE

APPROVED

[Signature]
UTILITIES ENGINEER

9-21-18
DATE

The City of Akron, Ohio
Department of Public Service - Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager

METER AND BACKFLOW PREVENTER ABOVE GROUND HEATED ENCLOSURE



DANIEL HARRIGAN, MAYOR



**CITY OF AKRON
PUBLIC SERVICE DEPARTMENT
WATER SUPPLY BUREAU**

**BACKFLOW PREVENTION PROGRAM
(330) 375-2690**

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

Installation Requirements

1. All piping to conform to Akron Water Works Standard Construction Drawings and Specifications.
2. Bypassing of this assembly is specifically prohibited.
3. Installation of this assembly in vaults is specifically prohibited.
4. Unions prior to backflow prevention assemblies are prohibited.
5. Installed directly after the meter setting ahead of any outlets.
6. Installed so as to be readily accessible for inspection, testing, and maintenance.
7. Provided with adequate space for inspection, testing, maintenance, and disassembly.
8. Protected from freezing by installation within a heated building.
9. Mounted in a horizontal position with abutting shut-off valves, as supplied with the assembly, three feet above finished floor.
10. Provided with adequate drainage.
11. Installed so that there is a visible free discharge from the relief port with no extension piping.
12. Installed per manufacturer's specifications. Where manufacturer's specifications conflict with these guidelines, these guidelines shall govern.
13. Because of their design, backflow prevention assemblies create a closed system and a detectable pressure loss. Because of these facts, the installation may alter the hydraulics of the internal plumbing system. The owner should contact a mechanical designer prior to installation.
14. Upon installation, assemblies must be tested by a backflow prevention assembly tester, certified by the Ohio Department of Commerce. The assembly must be dismantled, inspected internally, cleaned, and repaired, if necessary.
15. The bypass meter for a reduced pressure detector assembly shall be approved by the City of Akron Water Department, furnished and installed by the owner



**CITY OF AKRON
PUBLIC SERVICE DEPARTMENT
WATER SUPPLY BUREAU**

**BACKFLOW PREVENTION PROGRAM
(330) 375-2690**

DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY

Installation Requirements

1. All piping to conform to Akron Water Works Standard Construction Drawings and Specifications.
2. Bypassing of this assembly is specifically prohibited.
3. Installed directly after the meter setting ahead of any outlets.
4. Unions prior to backflow prevention assemblies are prohibited.
5. Installed so as to be readily accessible for inspection, testing, and maintenance.
6. Provided with adequate space for inspection, testing, maintenance, and disassembly.
7. Protected from freezing by installation within a heated building.
8. Mounted in a horizontal position with abutting shut-off valves, as supplied with the assembly, three feet above finished floor.
9. Installations above ground level are preferred. Where above ground installations are not reasonably practical, a vault may be used with the approval of the Public Utilities Bureau.
10. Installed per manufacturer's specifications. Where manufacturer's specifications conflict with these guidelines, these guidelines shall govern.
11. Because of their design, backflow prevention assemblies create a closed system and a detectable pressure loss. Because of these facts, the installation may alter the hydraulics of the internal plumbing system. The owner should contact a mechanical designer prior to installation.
12. Upon installation, assemblies must be tested by a backflow prevention assembly tester, certified by the Ohio Department of Commerce. The assembly must be dismantled, inspected internally, cleaned, and repaired, if necessary.
13. The bypass meter for a double check valve assembly on the bypass line shall be approved by the City of Akron Water Department, furnished and installed by the owner.

5/8"-1" Backflow Assembly Installation

1

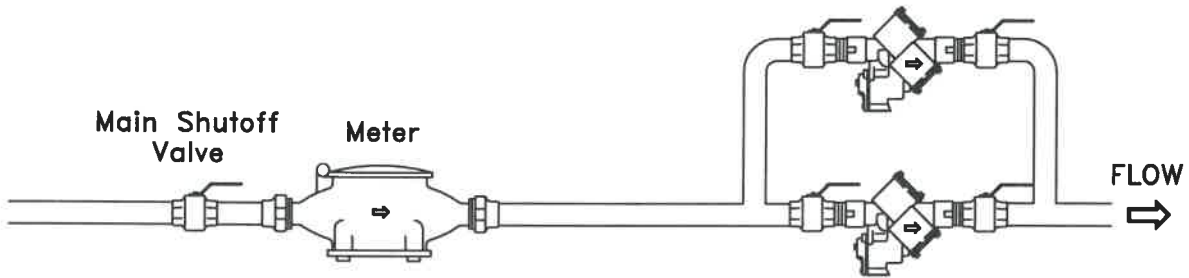


DATE
9-21-18

[Signature]
UTILITIES ENGINEER

2

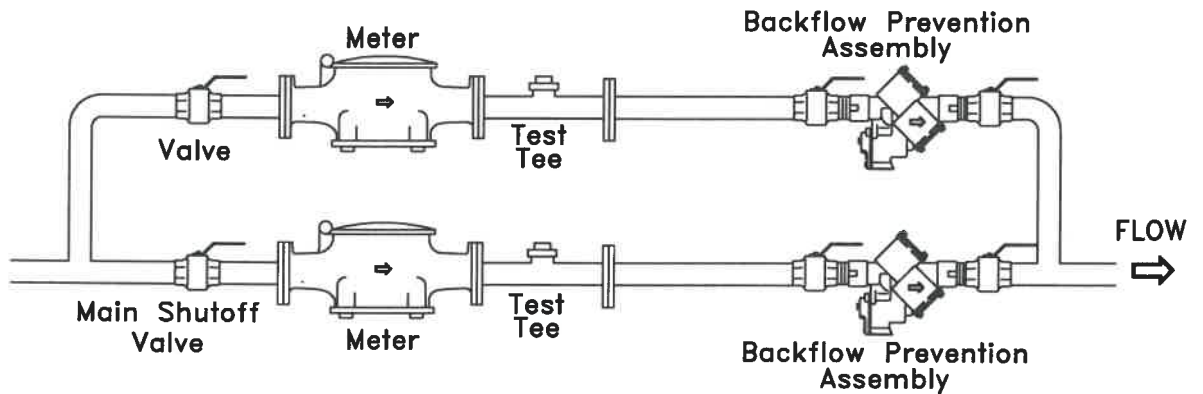
5/8"-1" Parallel Backflow Assembly Installation



APPROVED

3

1 1/2"-2" Parallel Meter & Backflow Assembly Installations



PAGE #18

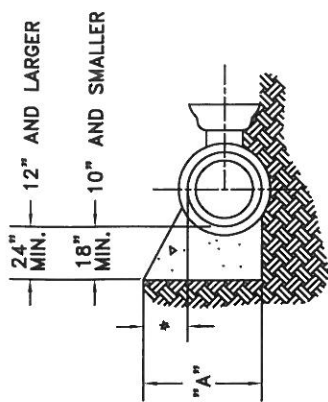
2017-009-18

The City of Akron, Ohio
Department of Public Service - Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager

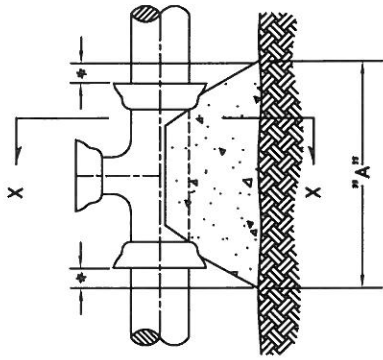
Approved Installations of Backflow Prevention Assemblies



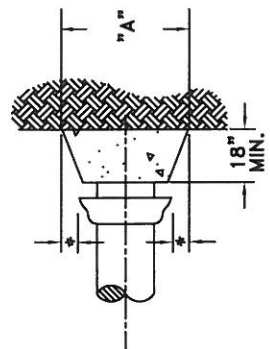
DANIEL HARRIGAN, MAYOR



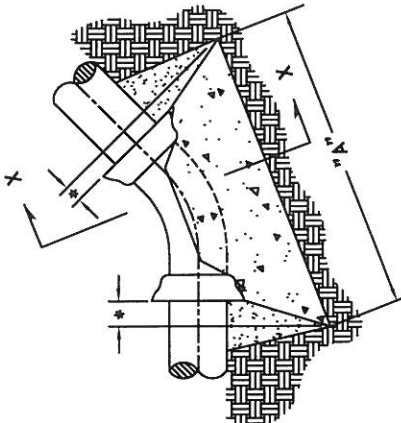
SECTION VIEW X-X



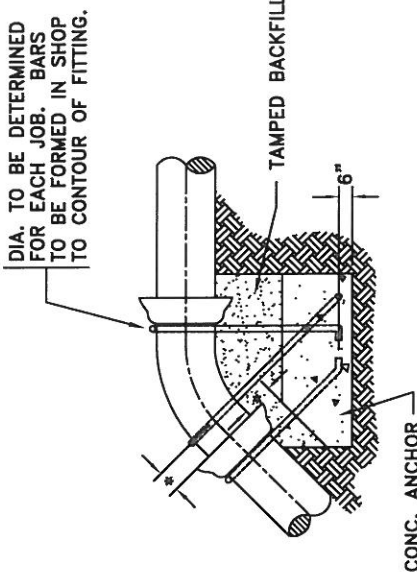
PLAN VIEW OF TEE



PLUG



HORIZONTAL BEND (UPWARD)



VERTICAL BEND (DOWNWARD)

MINIMUM VOLUME OF CONCRETE FOR TOP VERTICAL BENDS

6"	4 C.F.
8"	11 C.F.
10"	22 C.F.
12"	37 C.F.
16"	71 C.F.

DIA. TO BE DETERMINED FOR EACH JOB. BARS TO BE FORMED IN SHOP TO CONTOUR OF FITTING.

"A"		HORIZONTAL BENDS			
90°	45°	22 1/2°	TEE	PLUG	
6"	17"	13"	9"	13"	
8"	23"	17"	12"	17"	
10"	28"	21"	15"	21"	
12"	34"	25"	18"	25"	
16"	45"	33"	24"	28"	
				38"	

NOTE: IN AREAS OVER 100 PSI PLEASE CALL 330-375-2369 FOR THRUST BLOCK SIZING

APPROVED  UTILITIES ENGINEER

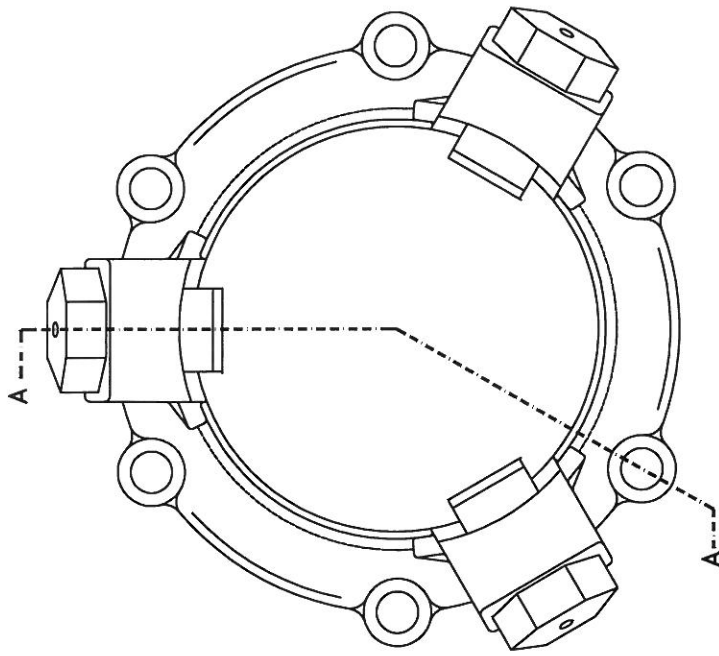
DATE 4-12-17

* 6" MINIMUM COPIED FROM Acc. C - 9015 AND REVISED

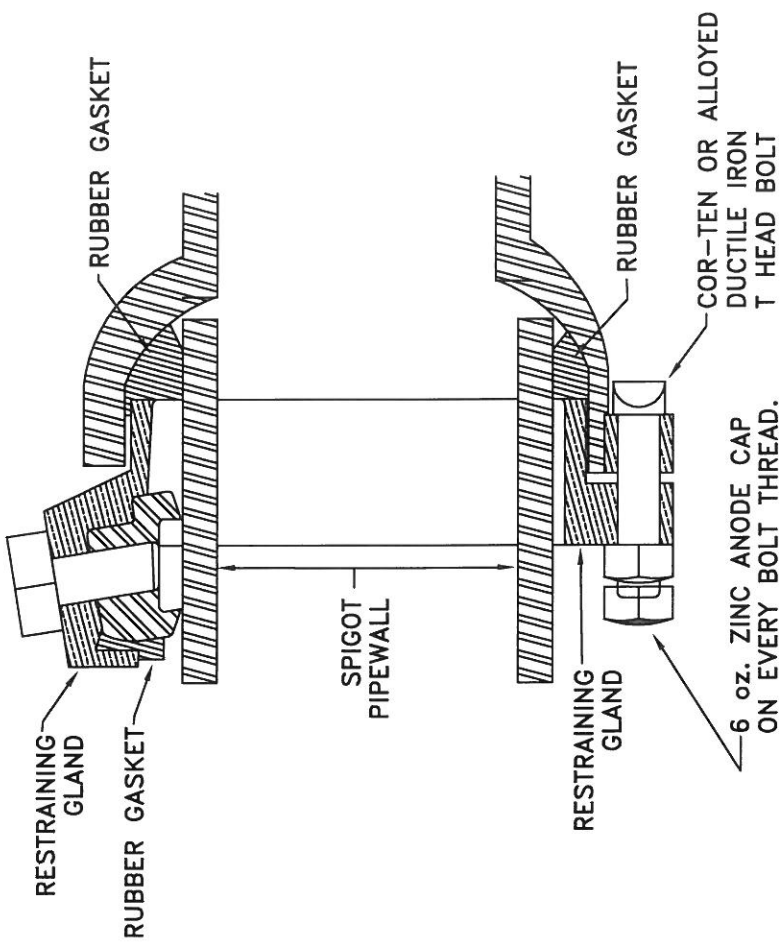
The City of Akron, Ohio
 Department of Public Services - Water Supply Bureau
 Jeffrey Bronowski P.E. - Bureau Manager

TYPICAL CONCRETE THRUST BLOCKING





MECHANICAL JOINT DUCTILE IRON RESTRAINING GLAND



MECHANICAL JOINT
SECTION A-A

NOTE: DUCTILE IRON RESTRAINED GLAND TO BE USED ON ALL FITTINGS

PIPE SIZE	WEIGHT (lbs.)
4"	7
6"	12
8"	16
10"	24
12"	33
16"	58

PAGE #20

2017-009-20

The City of Akron, Ohio
 Department of Public Service - Water Supply Bureau
 Jeffrey Bronowski P.E. - Bureau Manager
MECHANICAL JOINT DUCTILE IRON RESTRAINING GLANDS

REVISED BY CAS 3/17

NOT TO SCALE



DANIEL HARRIGAN, MAYOR

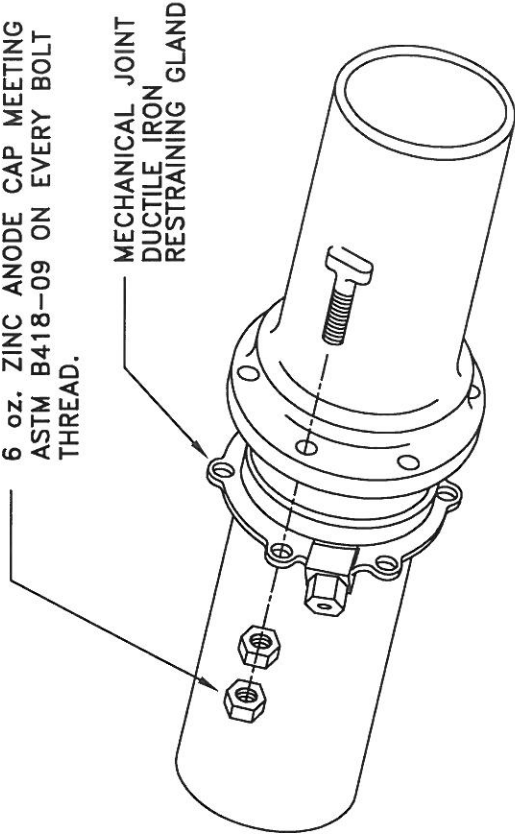
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 UTILITIES ENGINEER

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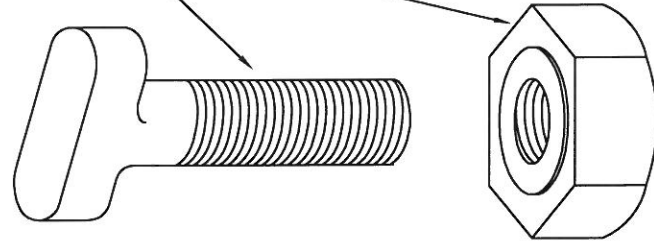
4-12-17
 DATE

6 oz. ZINC ANODE CAP MEETING
ASTM B418-09 ON EVERY BOLT
THREAD.

MECHANICAL JOINT
DUCTILE IRON
RESTRAINING GLAND



COR-TEN OR ALLOYED DUCTILE
IRON T HEAD BOLTS & NUTS.



CI53 COMPACT FITTINGS
T- HEAD BOLT LENGTH

PIPE	BOLT
4"	4"
6"	4"
8"	4½"
12"	4½"
16"	5"
20"	5"
24"	5½"

* NOTE: ADD 1/2" TO LENGTHS
FOR C110 FULL BODY
FITTINGS.

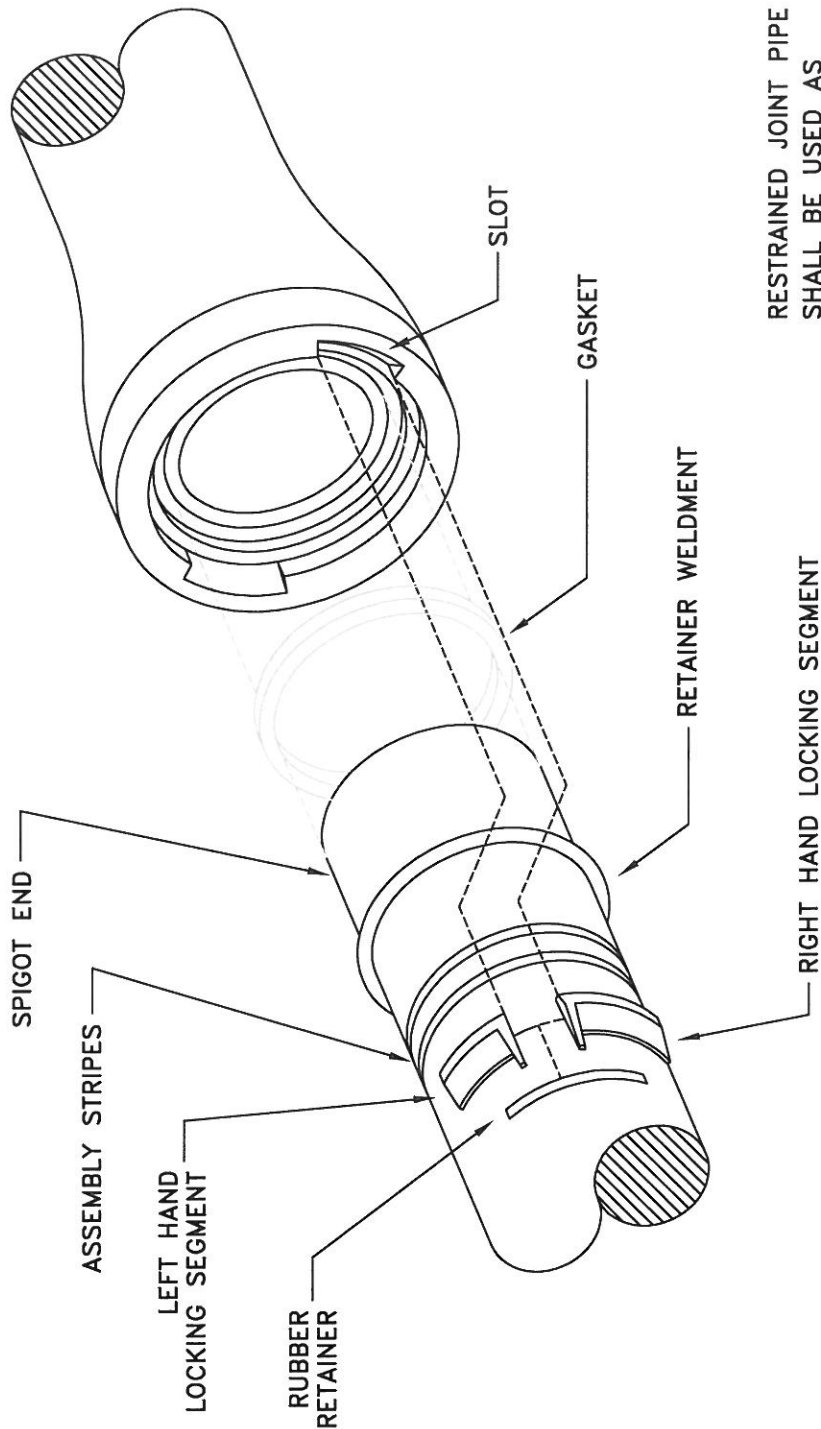
APPROVED

[Signature]
UTILITIES ENGINEER

4-12-17

DATE





RESTRAINED JOINT PIPE
SHALL BE USED AS
SPECIFIED ON PLANS.

4-12-17
DATE

[Signature]
UTILITIES ENGINEER

APPROVED

PAGE #22

2017-009-22

The City of Akron, Ohio
Department of Public Service - Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager

RESTRAINED JOINT PIPE

REVISED BY CAS 3/17

NOT TO SCALE

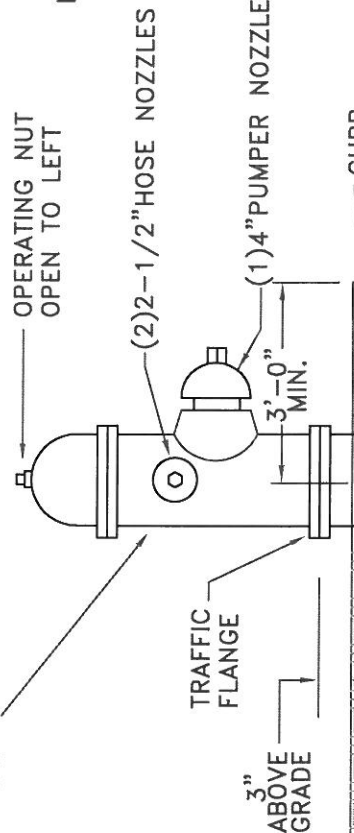


DANIEL HARRIGAN, MAYOR

JOINTS MAY BE MECHANICAL JOINTS WITH RESTRAINED FOLLOWER GLAND OR PUSH-ON WITH FIELD LOCK OR FAST GRIP GASKET.

AMERICAN FLOW CONTROL B62B WITH 6" INLET, AMERICAN FLOW CONTROL B84B WITH 8" INLET, EAST JORDAN MODEL CD-250, KENNEDY GUARDIAN MODEL K-81, MUELLER "CENTURIAN" MODEL A423. HYDRANTS SHALL HAVE AKRON THREADS AND 5' BURY.

AS REQUIRED



NOTE: CONTACT THE ENGINEERING OFFICE FOR BLOCK SIZING IN AREAS OF LOOSE SOIL.

CONCRETE OR HARDWOOD THRUST BLOCKING TO UNDISTURBED SOILS. ALL BLOCKING MUST BE CONCRETE FOR FIRE LINES AND AREAS OVER 100 PSI

* AN ANCHOR TEE MAY BE SUBSTITUTED PROVIDED NO CONFLICT WITH VALVE LOCATION

4'-6" MIN. COVER

[Signature]
UTILITIES ENGINEER

4-12-17
DATE

APPROVED

PAGE #23

2017-009-23

The City of Akron, Ohio
Department of Public Service Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager

HYDRANT RUN & INSTALLATION

REVISED BY CAS 4/17

NOT TO SCALE



DANIEL HARRIGAN, MAYOR

LAWN IRRIGATION

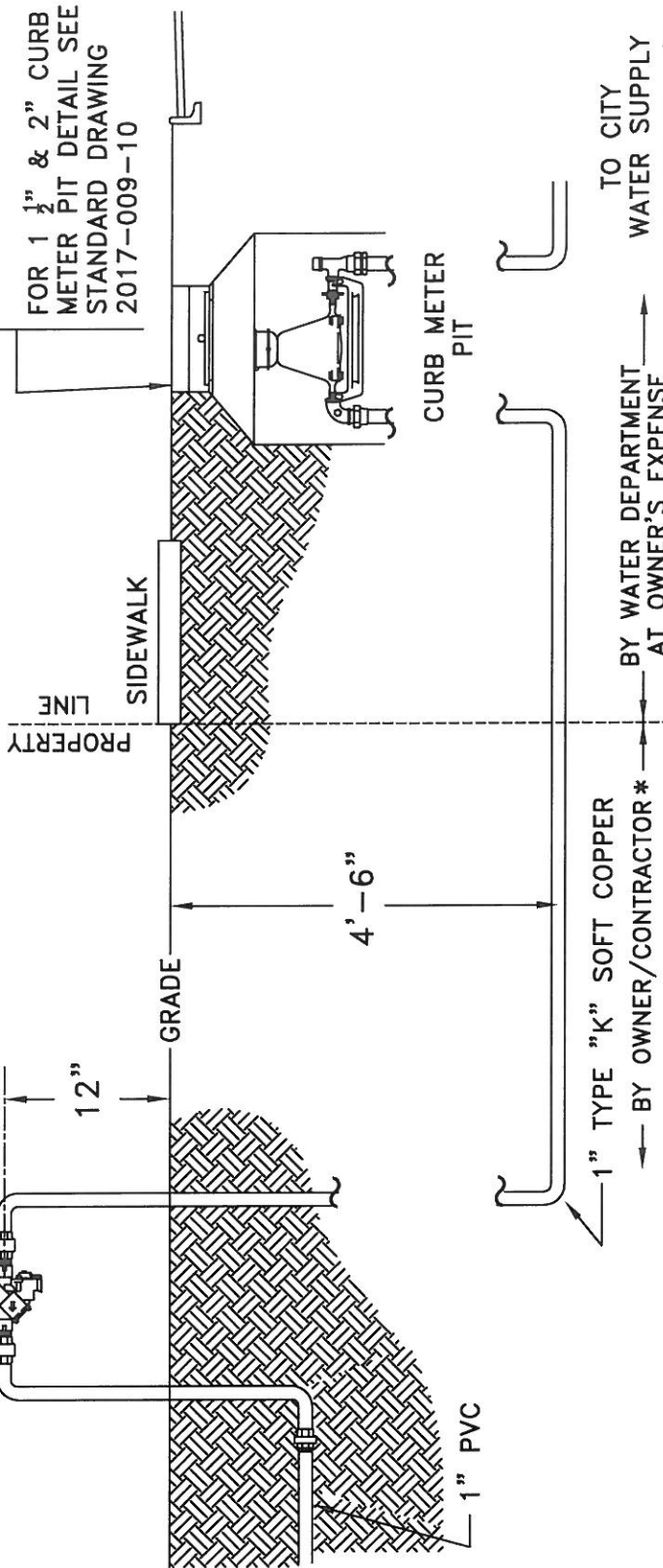
(CURB METER PIT AND R.P.Z. ABOVE GROUND)

ABUTTING BALL TYPE SHUT-OFF VALVES
SUPPLIED WITH BACKFLOW
PREVENTER

APPROVED TYPE REDUCED PRESSURE
PRINCIPLE BACKFLOW PREVENTER

FOR 1" CURB METER
PIT DETAIL SEE
STANDARD DRAWING
2017-009-06

FOR 1 1/2" & 2" CURB
METER PIT DETAIL SEE
STANDARD DRAWING
2017-009-10



TO CITY
WATER SUPPLY

BY WATER DEPARTMENT
AT OWNER'S EXPENSE

1" TYPE "K" SOFT COPPER
BY OWNER/CONTRACTOR *

* THE OWNER/CONTRACTOR PORTION OF WORK
MUST BE INSTALLED AND INSPECTED FOR
APPROVAL BY WATER DEPARTMENT PERSONNEL
PRIOR TO BACK FILLING AND THE
SERVICE INSTALLATION

APPROVED *[Signature]* UTILITIES ENGINEER

DATE 4-12-17

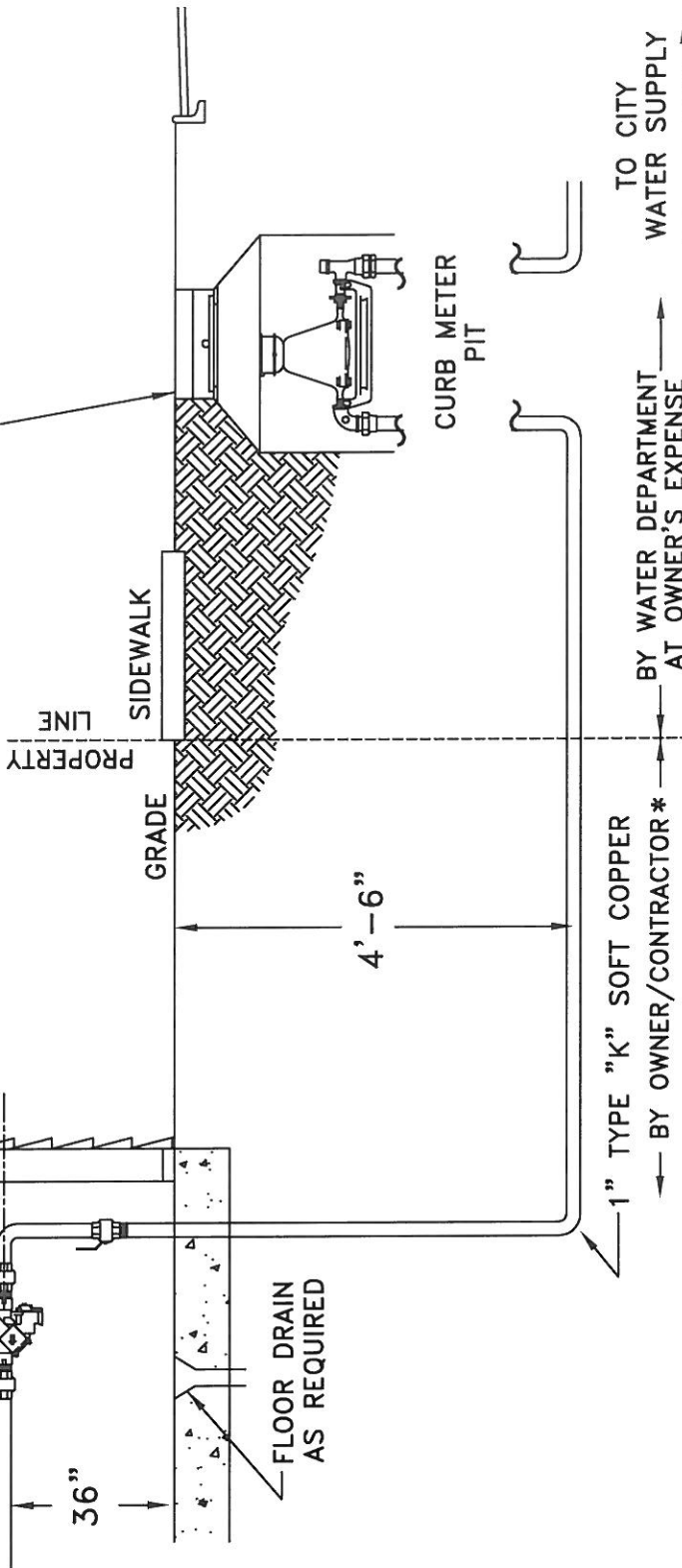


ABUTTING BALL TYPE SHUT-OFF VALVES SUPPLIED WITH BACKFLOW PREVENTER

APPROVED TYPE REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER

FOR 1" CURB METER PIT DETAIL SEE STANDARD DRAWING 2017-009-06

FOR 1 1/2" & 2" CURB METER PIT DETAIL SEE STANDARD DRAWING 2017-009-10



* THE OWNER/CONTRACTOR PORTION OF WORK MUST BE INSTALLED AND INSPECTED FOR APPROVAL BY WATER DEPARTMENT PERSONNEL PRIOR TO BACK FILLING AND THE SERVICE INSTALLATION

[Signature]
UTILITIES ENGINEER

APPROVED

4-12-17

DATE

PAGE #26

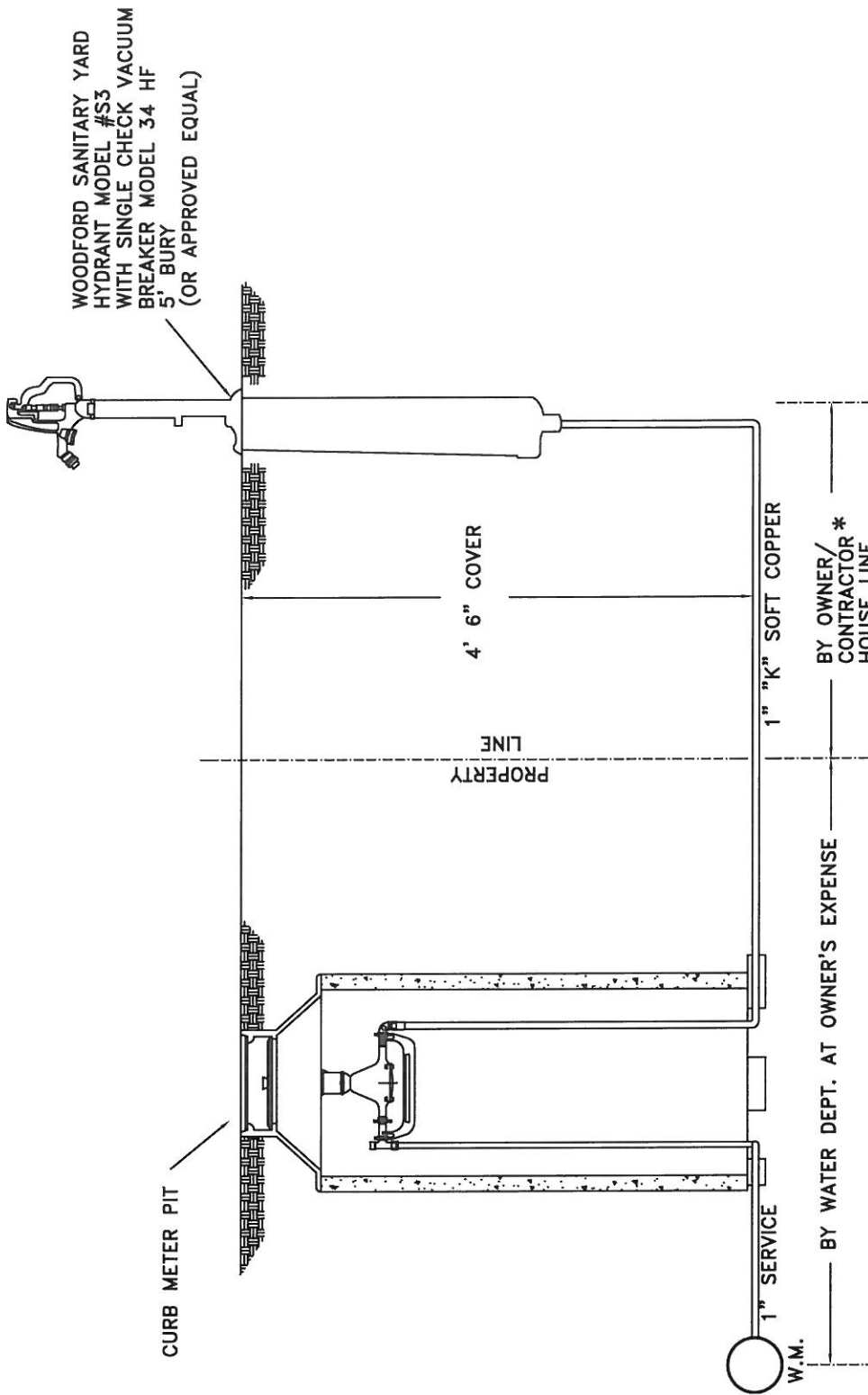
2017-009-26

The City of Akron, Ohio
Department of Public Service - Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager

CURB METER PIT WITH R.P.Z. INSIDE



DANIEL HARRIGAN, MAYOR



* THE OWNER/CONTRACTOR PORTION OF WORK MUST BE INSTALLED AND INSPECTED FOR APPROVAL BY WATER DEPARTMENT PERSONNEL PRIOR TO BACK FILLING AND THE SERVICE INSTALLATION

APPROVED *[Signature]* UTILITIES ENGINEER
 DATE 4-12-17

The City of Akron, Ohio
 Department of Public Service - Water Supply Bureau
 Jeffrey Bronowski P.E. - Bureau Manager

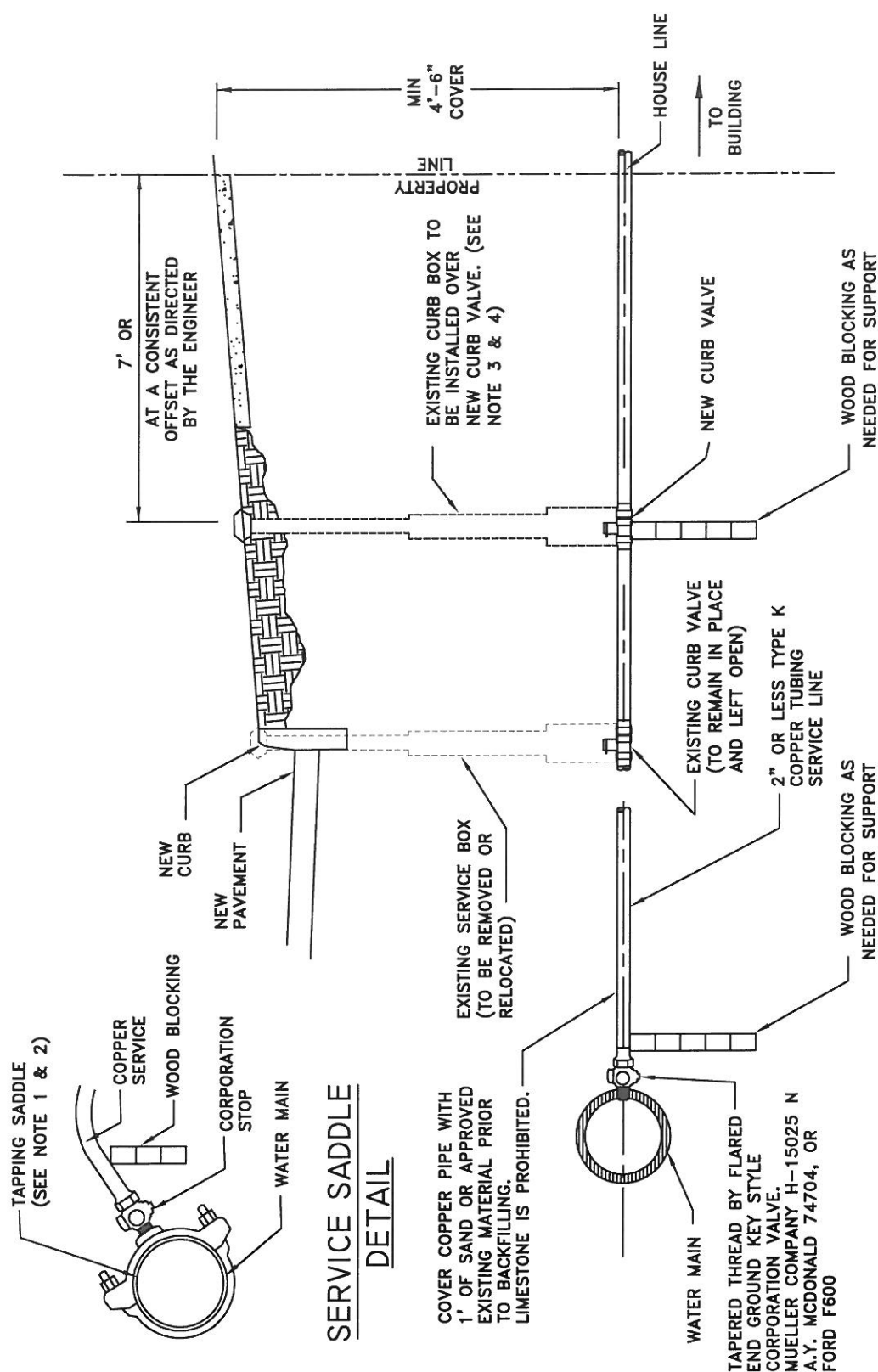
YARD HYDRANT INSTALLATION

REVISED BY CAS 3/17

NOT TO SCALE



DANIEL HARRIGAN, MAYOR



**SERVICE SADDLE
DETAIL**

COVER COPPER PIPE WITH 1' OF SAND OR APPROVED EXISTING MATERIAL PRIOR TO BACKFILLING. LIMESTONE IS PROHIBITED.

WATER MAIN
TAPERED THREAD BY FLARED END GROUND KEY STYLE CORPORATION VALVE. MUELLER COMPANY H-15025 N A.Y. McDONALD 74704, OR FORD F600

- NOTE:
1. A TAPPING SADDLE IS REQUIRED FOR SERVICES SIZES 1 1/4" - 2" AND ALL PLASTIC PIPE.
 2. SERVICE SADDLES SHALL BE EITHER A.Y. McDONALD 3825, POWER SEAL 3409 OR APPROVED EQUAL.
 3. 1-1/2" CURB BOXES OR CURB BOXES IN POOR CONDITION SHALL BE REPLACED WITH 2" YOLOY CURB BOX.
 4. CURB BOX SHALL BE INSTALLED IN LAWN STRIP. AVOID INSTALLING BOX IN PAVED OR CONCRETE AREAS.

PAGE #28

2017-009-28

The City of Akron, Ohio
 Department of Public Service - Water Supply Bureau
 Jeffrey Bronowski P.E. - Bureau Manager

TYPICAL 2" OR LESS TYPE K SERVICE CONNECTION

REVISED BY CAS 3/17

NOT TO SCALE



DANIEL HARRIGAN, MAYOR

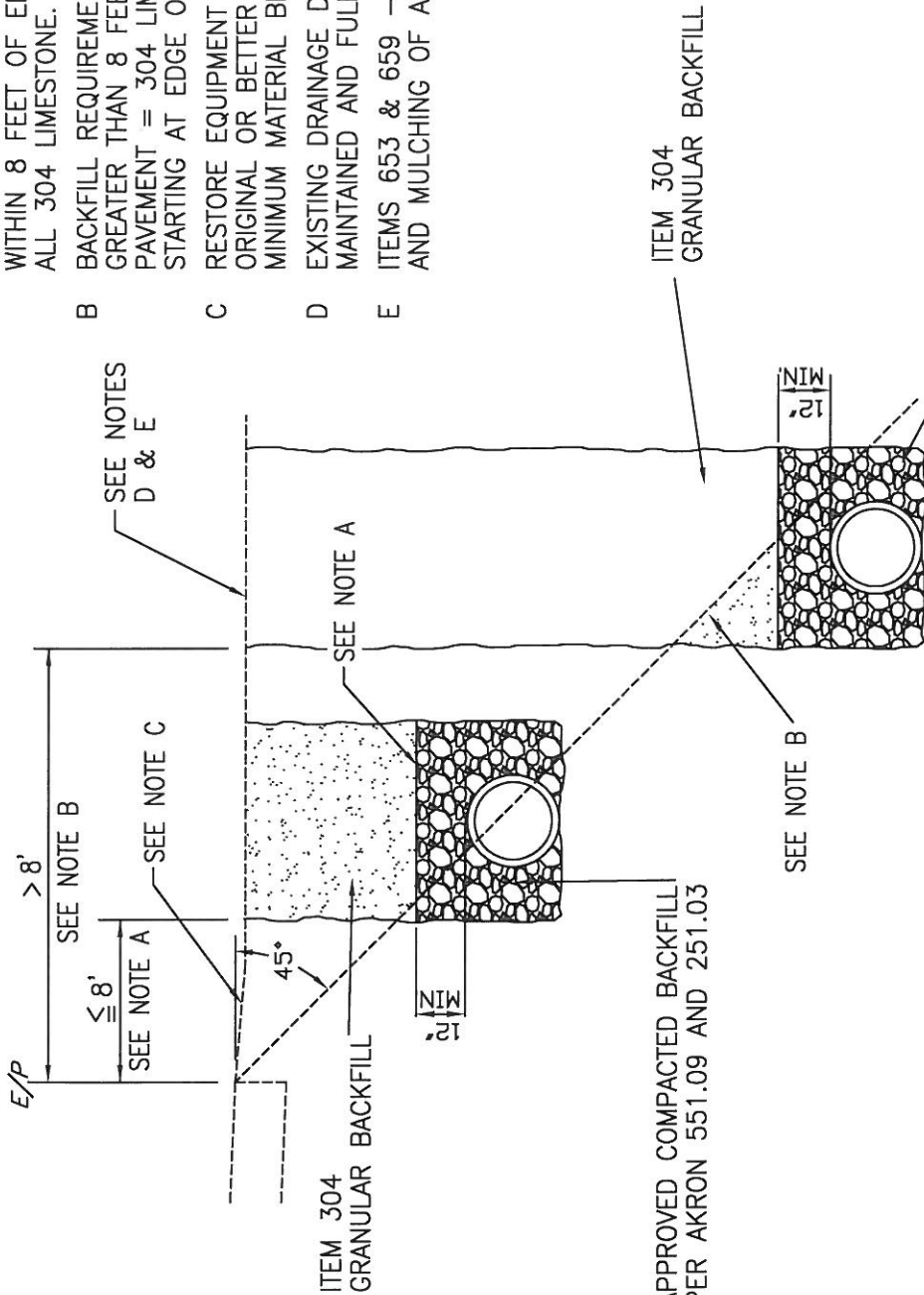
[Signature]
 UTILITIES ENGINEER

APPROVED

4-12-17
 DATE

NOTES

- A BACKFILL REQUIREMENT FOR EXCAVATIONS WITHIN 8 FEET OF EDGE OF PAVEMENT = ALL 304 LIMESTONE.
- B BACKFILL REQUIREMENT FOR EXCAVATIONS GREATER THAN 8 FEET FROM EDGE OF PAVEMENT = 304 LIMESTONE BELOW A 45° STARTING AT EDGE OF PAVEMENT.
- C RESTORE EQUIPMENT DAMAGED BERM TO ORIGINAL OR BETTER CONDITION WITH THE MINIMUM MATERIAL BEING 304 LIMESTONE.
- D EXISTING DRAINAGE DITCHES TO BE MAINTAINED AND FULLY RESTORED.
- E ITEMS 653 & 659 – TOPSOIL, SEEDING AND MULCHING OF ALL DISTURBED AREAS.



APPROVED COMPACTED BACKFILL PER AKRON 551.09 AND 251.03

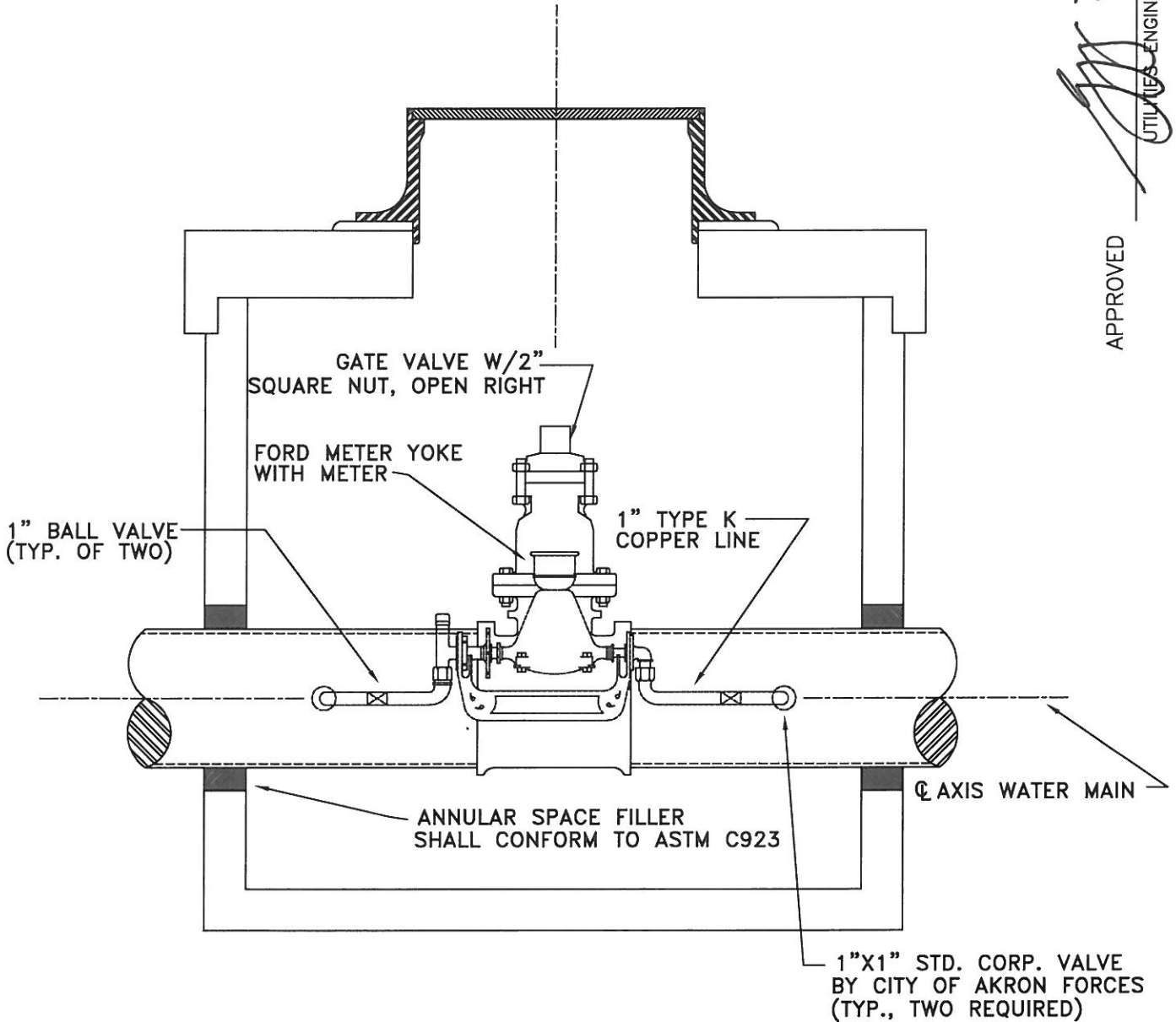
APPROVED _____ DATE 4-12-17
 UTILITIES ENGINEER

NOTE: 1" METER AND YOKE TO BE SUPPLIED BY THE CITY OF AKRON WATER DEPARTMENT. CORPORATION VALVE SHALL BE INSTALLED BY CITY OF AKRON. CONTRACTOR IS RESPONSIBLE FOR ALL COPPER PIPING, FITTINGS AND BALL VALVES AS REQUIRED PER INSTALLATION AND WILL BE PAID FOR AS THE UNIT PRICE BID FOR ITEM SPECIAL, BYPASS METER, COMPLETE.

4-12-17
DATE

[Signature]
UTILITIES ENGINEER

APPROVED



PAGE #30

2017-009-30

The City of Akron, Ohio
Department of Public Service - Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager

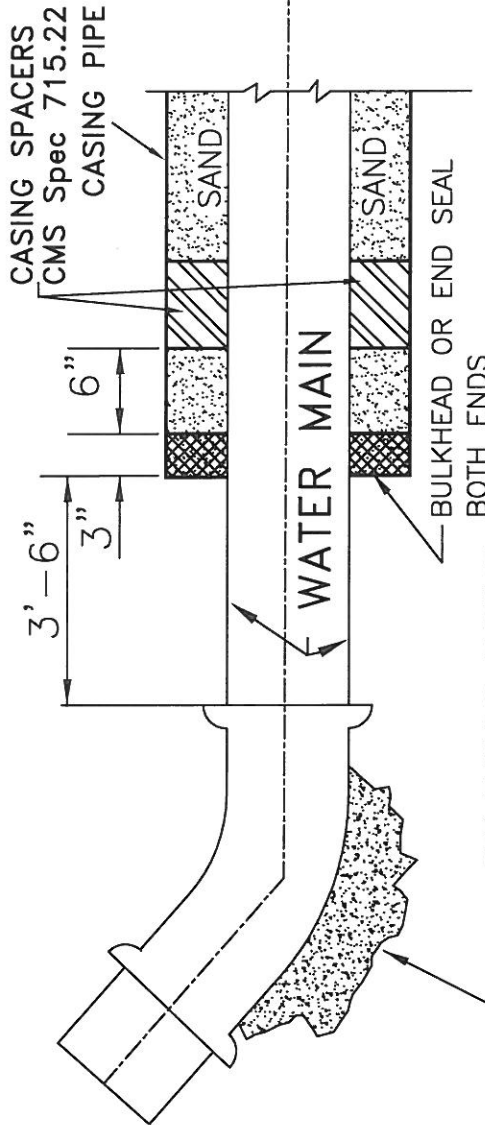
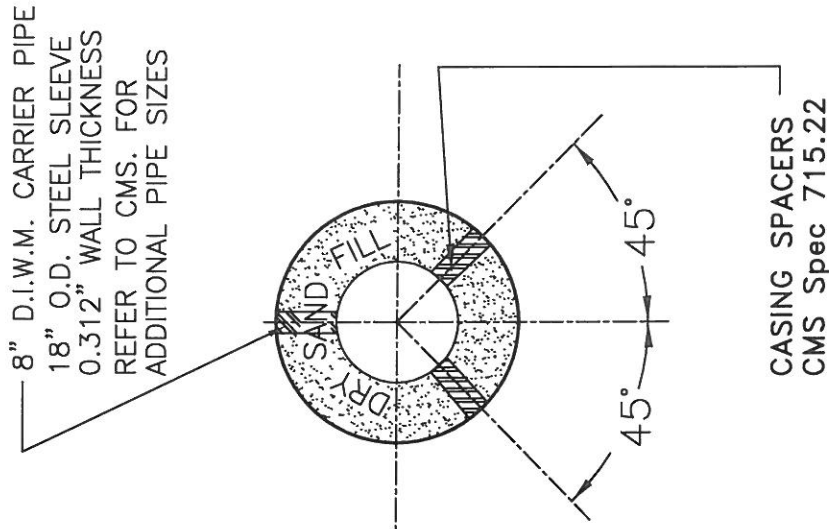
WATER MANHOLE DETAIL



DANIEL HARRIGAN, MAYOR

DRAWN BY CAD 3/17

NOTE: AFTER WATER MAIN HAS BEEN INSTALLED, DRY SAND SHALL BE BLOWN IN FROM BOTH ENDS.



SEE TYPICAL THRUST BLOCKING DETAIL.
SEE STANDARD 2017-009-19

CARRIER PIPE MUST HAVE RESTRAINED JOINTS.

NOTE: STEEL CASING SLEEVE SHALL BE INSTALLED AS TO PREVENT FORMATION OF A WATERWAY UNDER THE CHANNEL BED AND WITH AN EVEN BEARING THROUGHOUT ITS LENGTH AND SLOPED TO ONE END. THE CASING PIPE JOINTS ARE TO BE WELDED WATER TIGHT.

NOTE: STEEL CASING PIPE, SPACERS, AND DRY SAND ARE TO BE INCLUDED IN UNIT PRICE BID FOR ITEM 264 - STEEL CASING PIPE PER LIN. FT.

APPROVED

[Signature]
UTILITIES ENGINEER

4-12-17

DATE

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2017-009-31

The City of Akron, Ohio
Department of Public Service - Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager

TYPICAL STEEL CASING DETAIL

REVISED BY CAS 3/17

NOT TO SCALE

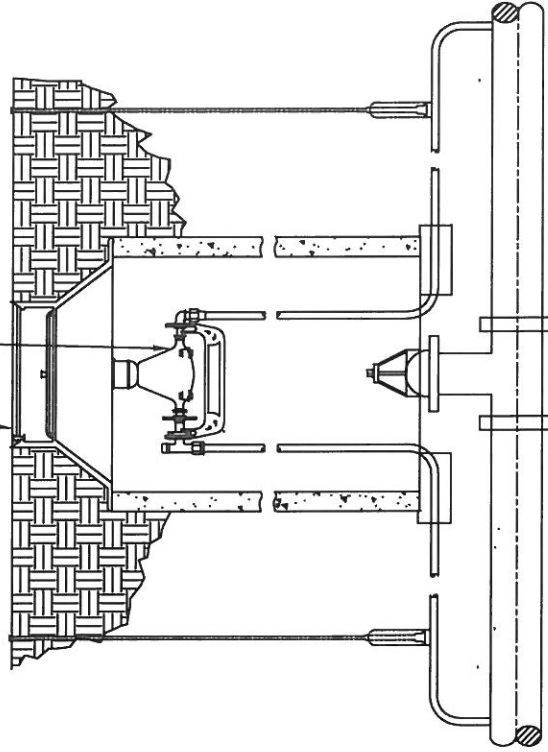


DANIEL HARRIGAN, MAYOR

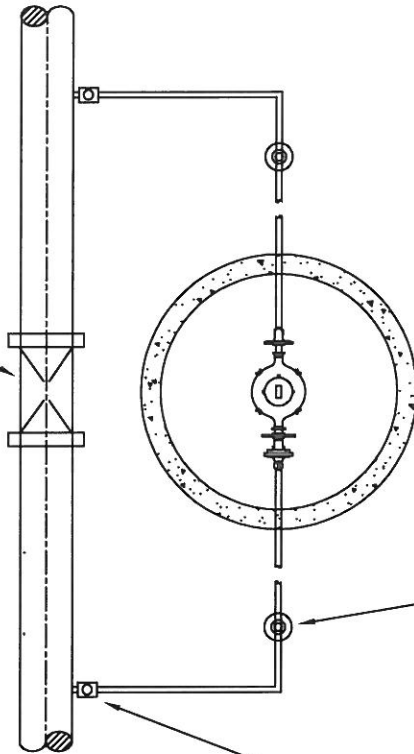
FOR CURB METER PIT
INFO. REFER TO DRAWING
2017-009-06

METER TO BE PROVIDED
BY THE CITY OF AKRON
AND PURCHASE BY THE
OWNER.

MAIN LINE VALVE



PLAN VIEW



1" CORP.
VALVE (TYP.)

1" CURB
VALVE &
BOX (TYP.)

CURB METER PIT

OVERHEAD VIEW

APPROVED

[Signature]
UTILITIES ENGINEER

4-12-17

DATE

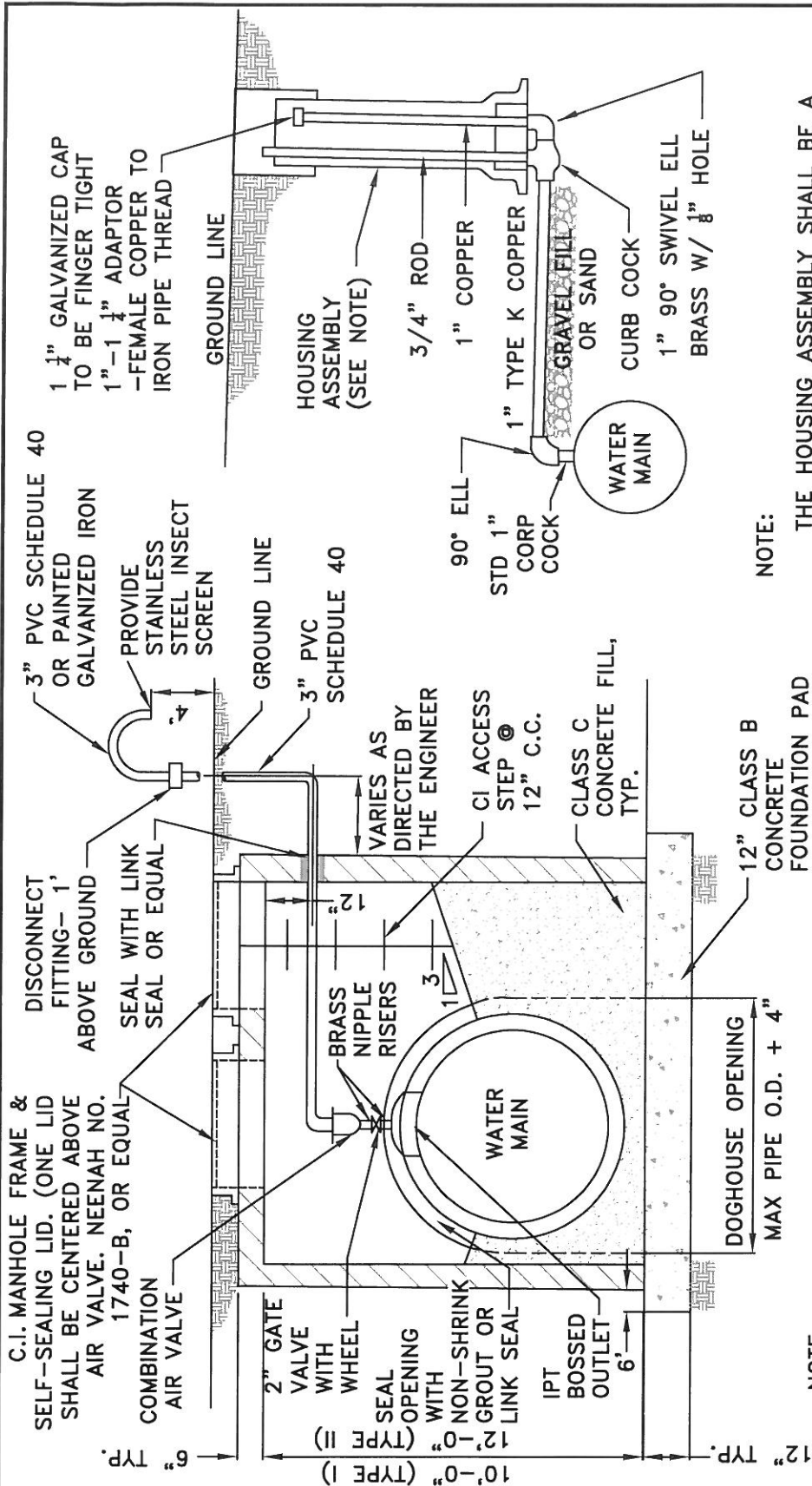
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The City of Akron, Ohio
Department of Public Service - Water Supply Bureau
Jeffrey Bronowski P.E. - Bureau Manager
RIVER CROSSING DETAIL



DANIEL HARRIGAN, MAYOR



NOTE:

THE HOUSING ASSEMBLY SHALL BE A VALVE BOX ASSEMBLY IN THE PAVEMENT OR A 24" DIA. METER PIT BEHIND THE CURB.

NOTE:

THE COMBINATION AIR VALVES SHALL HAVE A 2" IRON PIPE THREADS.

1" MANUAL AIR RELEASE VALVE DETAIL

NOT TO SCALE

APPROVED *[Signature]* UTILITIES ENGINEER
 DATE 4-12-17

2" AUTOMATIC AIR RELEASE VALVE DETAIL

NOT TO SCALE

The City of Akron, Ohio
 Department of Public Service - Water Supply Bureau
 Jeffrey Bronowski P.E. - Bureau Manager

AIR RELEASE DETAILS

