



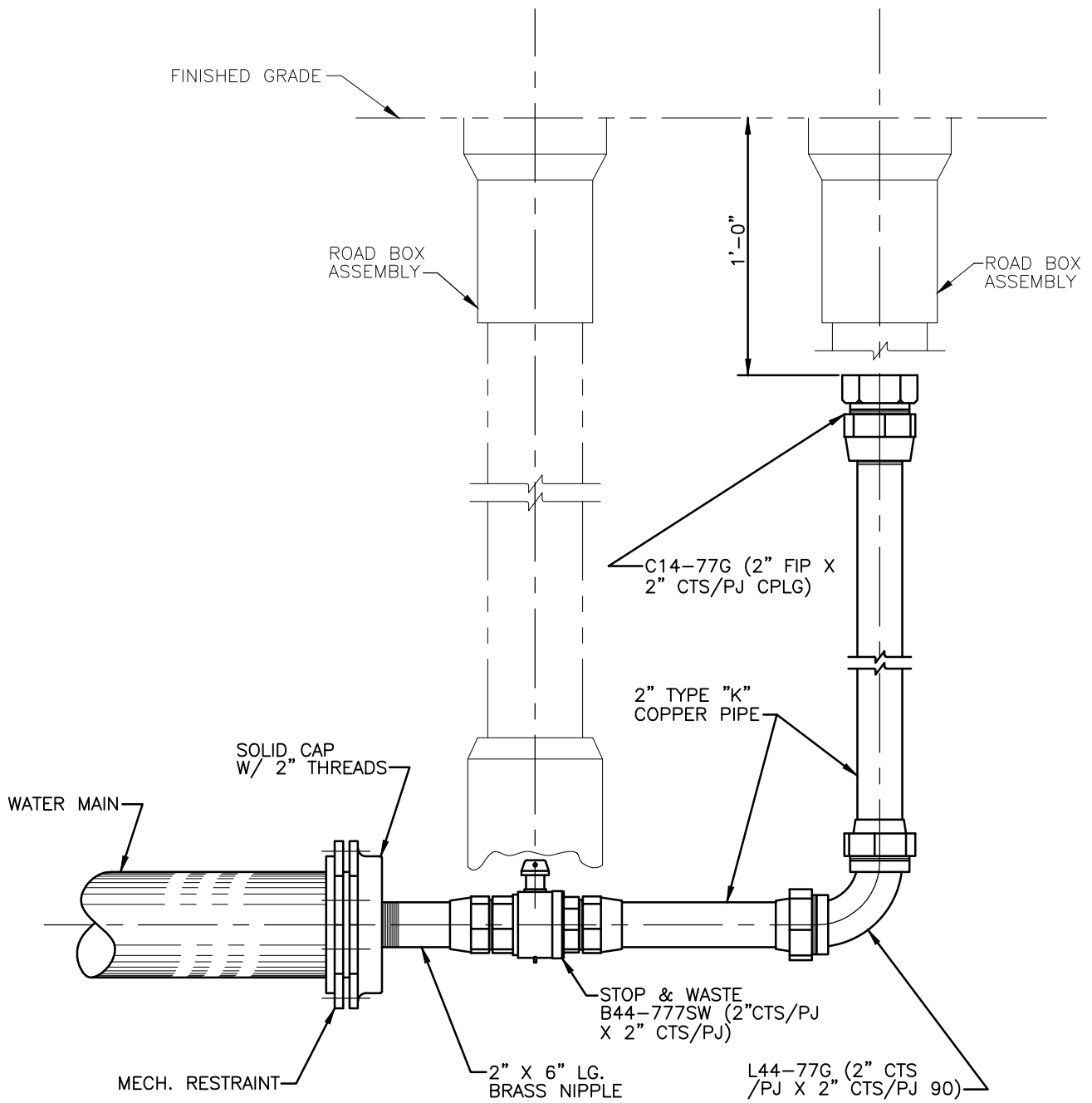
# **Altoona Water Authority**

## **Construction Details**

**Last Revised April 16, 2019**

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ALTOONA WATER AUTHORITY  
STANDARD DETAIL

2" BLOWOFF ASSEMBLY

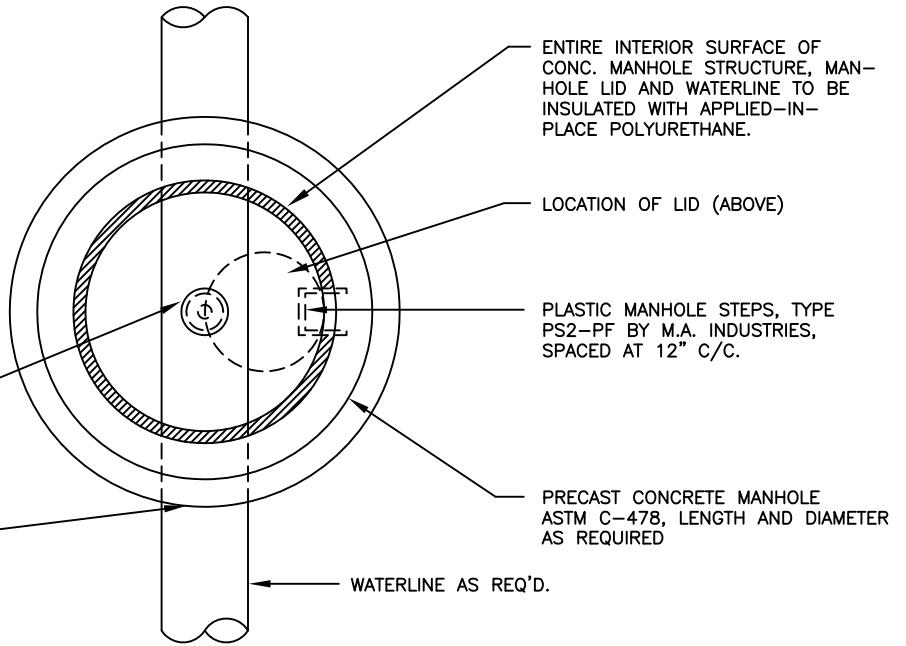
SCALE: NONE

DATE: 05-28-19

PAGE 1

**NOTE:**

- ALL FERROUS METAL COMPONENTS OF VALVE VAULT TO BE COATED WITH BITUMASTIC COATING SYSTEM AS DIRECTED BY THE ENGINEER.



AUTOMATIC AIR RELEASE/VACUUM VALVE (SEE BELOW).

PROVIDE NEAT HOLE IN MANHOLE WALL TO ACCOMMODATE WATERLINE PIPE (SIZE AS REQ'D.) ANNULAR SPACE BETWEEN PIPE AND MANHOLE WALL TO BE FILLED WITH SUITABLE NON-SHRINK GROUT. (TYPICAL)

ENTIRE INTERIOR SURFACE OF CONC. MANHOLE STRUCTURE, MANHOLE LID AND WATERLINE TO BE INSULATED WITH APPLIED-IN-PLACE POLYURETHANE.

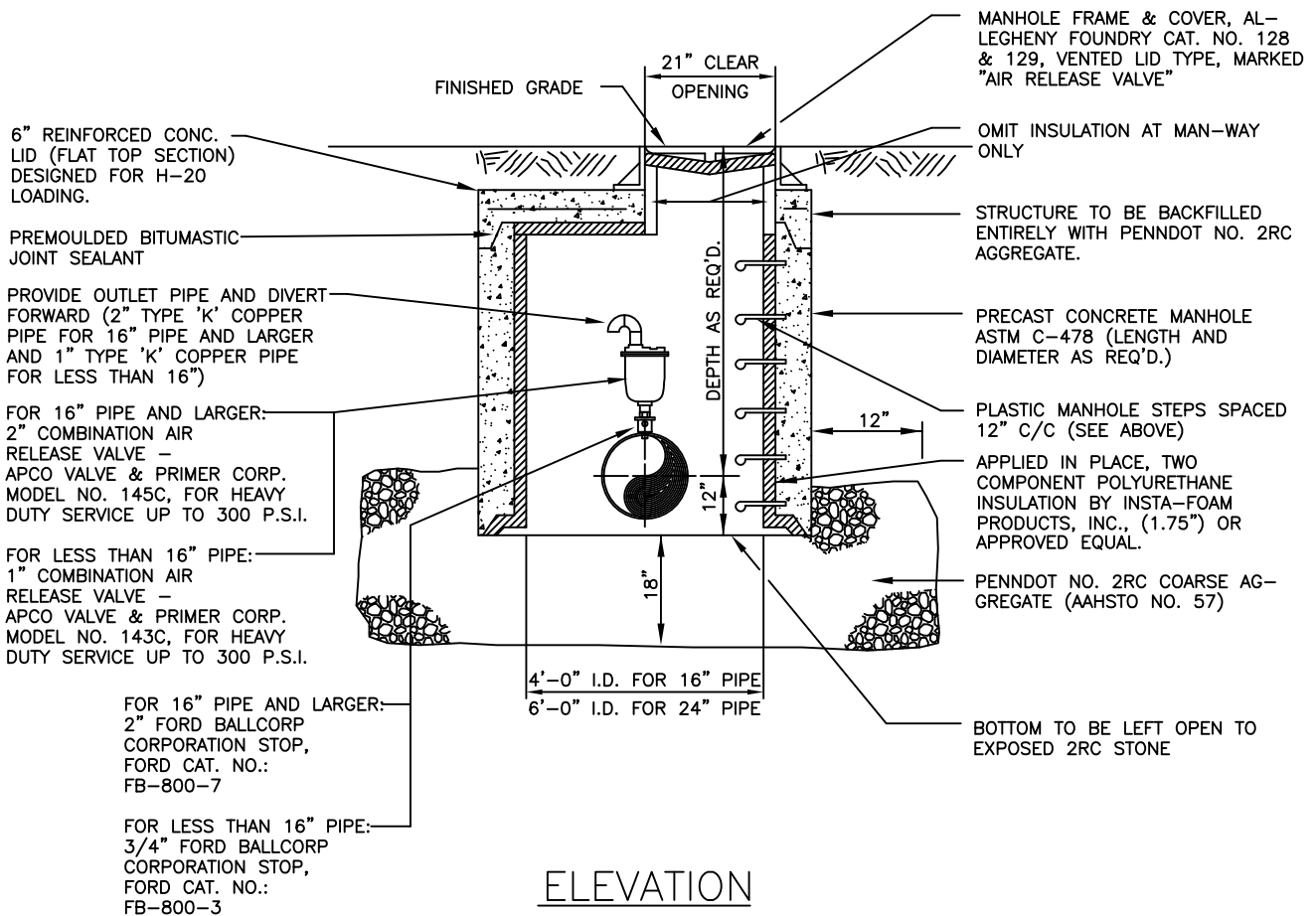
LOCATION OF LID (ABOVE)

PLASTIC MANHOLE STEPS, TYPE PS2-PF BY M.A. INDUSTRIES, SPACED AT 12" C/C.

PRECAST CONCRETE MANHOLE ASTM C-478, LENGTH AND DIAMETER AS REQUIRED

WATERLINE AS REQ'D.

PLAN



FINISHED GRADE

21" CLEAR OPENING

6" REINFORCED CONC. LID (FLAT TOP SECTION) DESIGNED FOR H-20 LOADING.

PREMOULDED BITUMASTIC JOINT SEALANT

PROVIDE OUTLET PIPE AND DIVERT FORWARD (2" TYPE 'K' COPPER PIPE FOR 16" PIPE AND LARGER AND 1" TYPE 'K' COPPER PIPE FOR LESS THAN 16")

FOR 16" PIPE AND LARGER: 2" COMBINATION AIR RELEASE VALVE - APCO VALVE & PRIMER CORP. MODEL NO. 145C, FOR HEAVY DUTY SERVICE UP TO 300 P.S.I.

FOR LESS THAN 16" PIPE: 1" COMBINATION AIR RELEASE VALVE - APCO VALVE & PRIMER CORP. MODEL NO. 143C, FOR HEAVY DUTY SERVICE UP TO 300 P.S.I.

FOR 16" PIPE AND LARGER: 2" FORD BALLCORP CORPORATION STOP, FORD CAT. NO.: FB-800-7

FOR LESS THAN 16" PIPE: 3/4" FORD BALLCORP CORPORATION STOP, FORD CAT. NO.: FB-800-3

MANHOLE FRAME & COVER, ALLEGHENY FOUNDRY CAT. NO. 128 & 129, VENTED LID TYPE, MARKED "AIR RELEASE VALVE"

OMIT INSULATION AT MAN-WAY ONLY

STRUCTURE TO BE BACKFILLED ENTIRELY WITH PENNDOT NO. 2RC AGGREGATE.

PRECAST CONCRETE MANHOLE ASTM C-478 (LENGTH AND DIAMETER AS REQ'D.)

PLASTIC MANHOLE STEPS SPACED 12" C/C (SEE ABOVE)

APPLIED IN PLACE, TWO COMPONENT POLYURETHANE INSULATION BY INSTA-FOAM PRODUCTS, INC., (1.75") OR APPROVED EQUAL.

PENNDOT NO. 2RC COARSE AGGREGATE (AAHSTO NO. 57)

BOTTOM TO BE LEFT OPEN TO EXPOSED 2RC STONE

ELEVATION

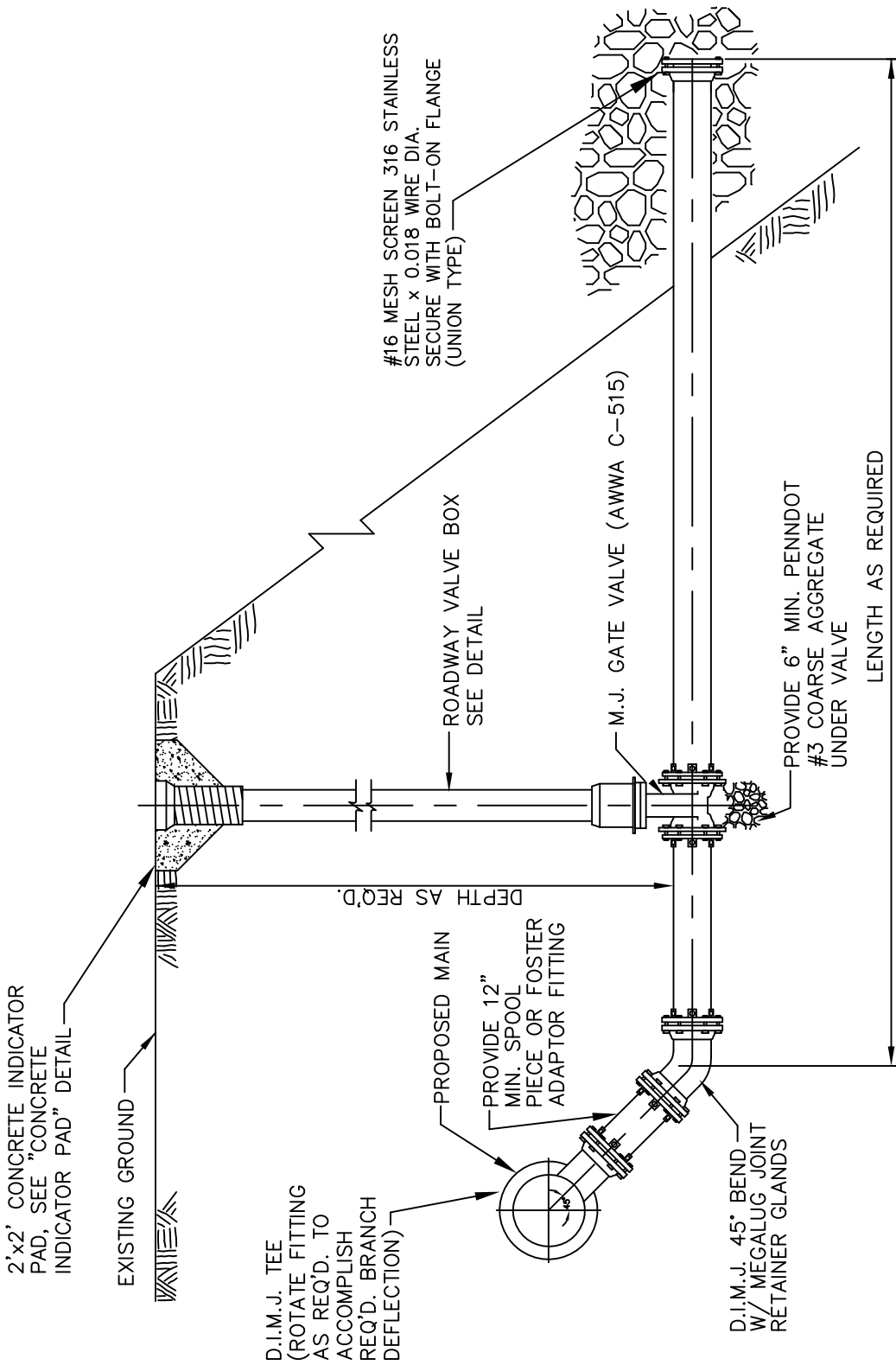
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

AIR RELEASE VALVE

SCALE: NONE

DATE: 1-20-05

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**NOTES:**

- PROVIDE EFFECTIVELY CONTINUOUS JOINT RESTRAINT FROM MAIN TEE TO DISCHARGE (USING MEGALUG RETAINER GLANDS AS REQUIRED).

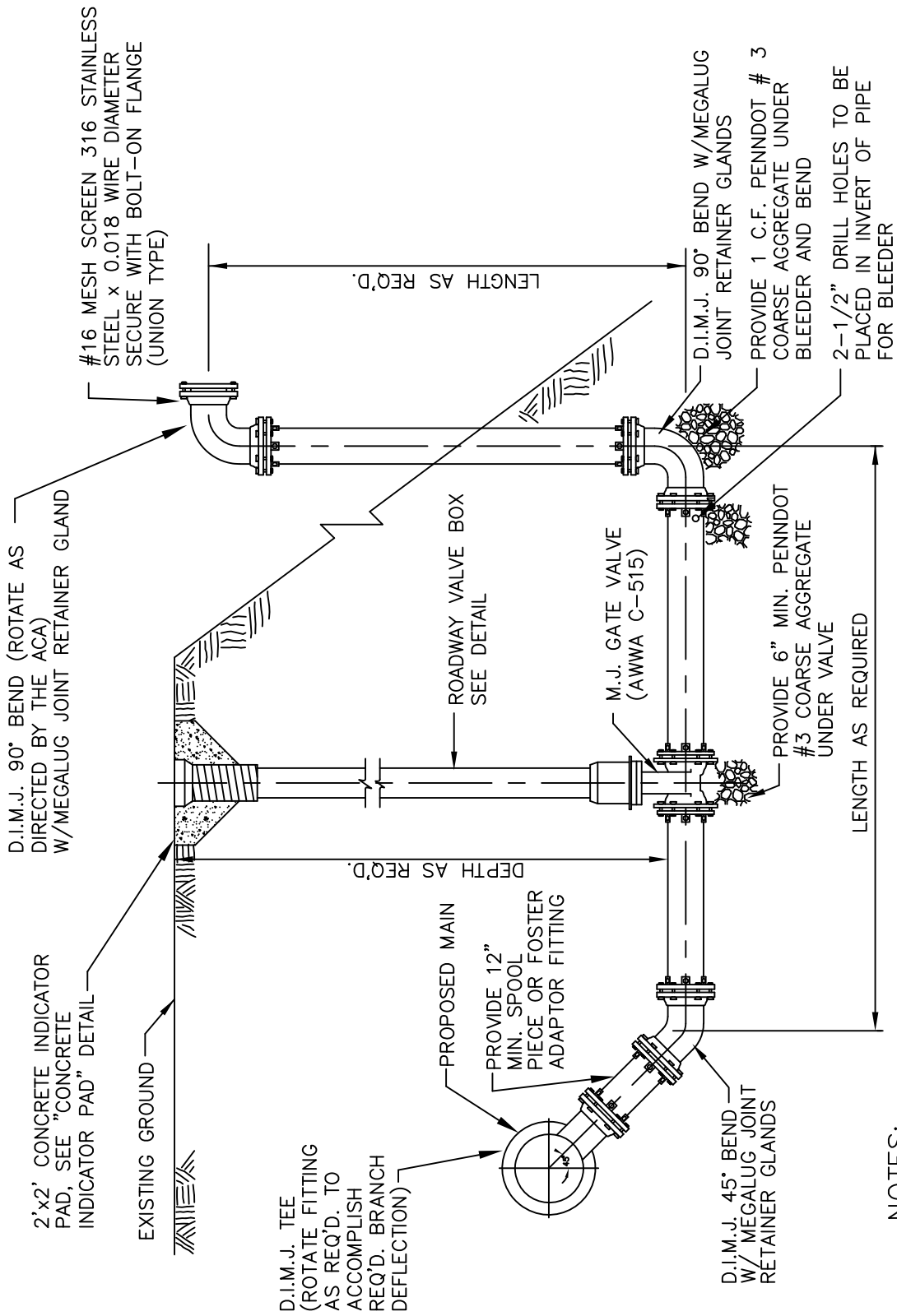
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

TYPICAL BLOWOFF ASSEMBLY  
AT GRADE DISCHARGE

SCALE: NONE

DATE: 1-20-05

PAGE 3



**NOTES:**

- PROVIDE EFFECTIVELY CONTINUOUS JOINT RESTRAINT FROM MAIN LINE TEE TO DISCHARGE (USING MEGALUG RETAINER GLANDS AS REQUIRED).

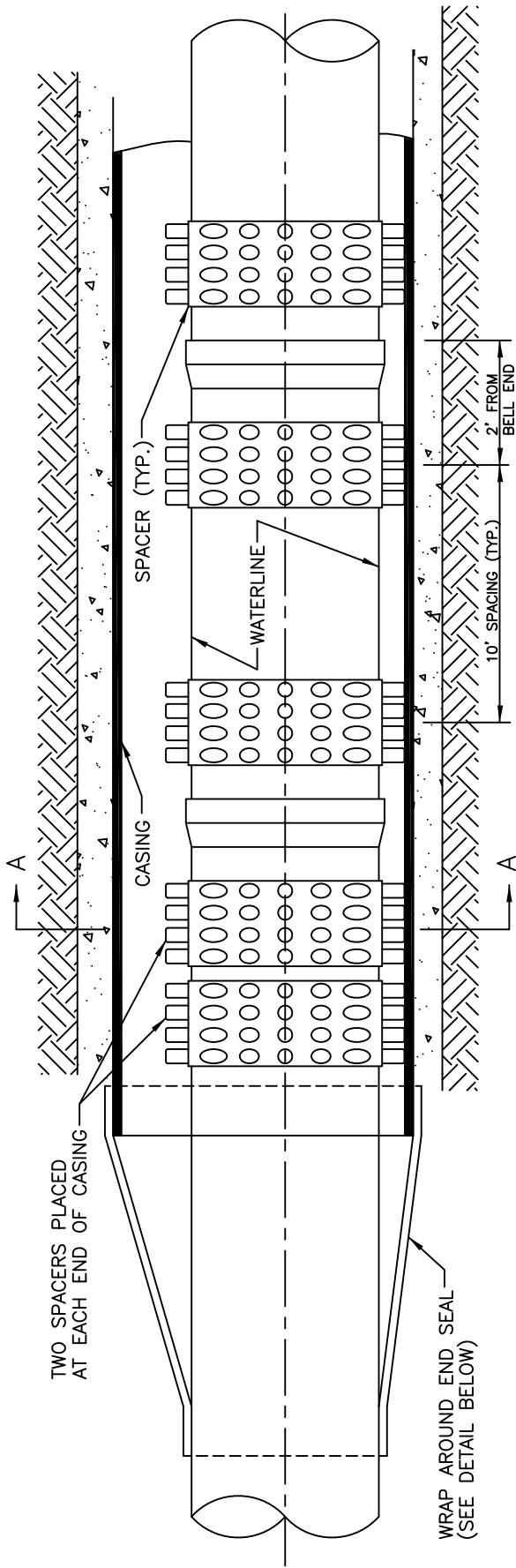
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

TYPICAL BLOWOFF ASSEMBLY  
ABOVE GRADE DISCHARGE

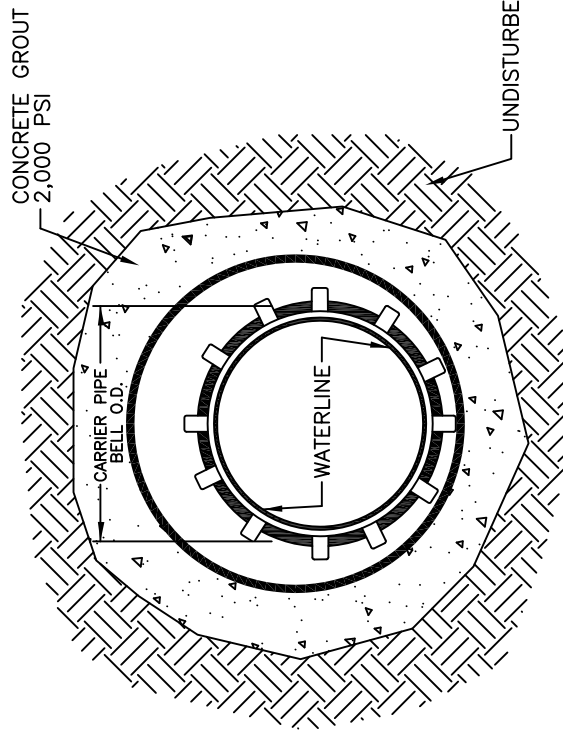
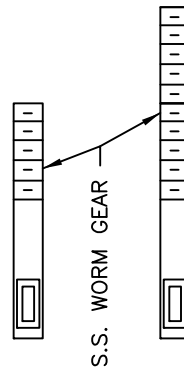
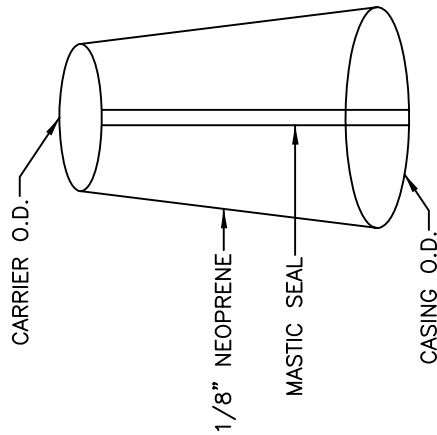
SCALE: NONE

DATE: 1-20-05

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SPACERS SHALL BE RACI HIGH DENSITY POLYETHYLENE AS MANUFACTURED BY RECON PIPE CORP. OR APPROVED EQUAL. SPACER HEIGHT SHALL BE 2.36".



SECTION A-A

WRAP AROUND END SEAL

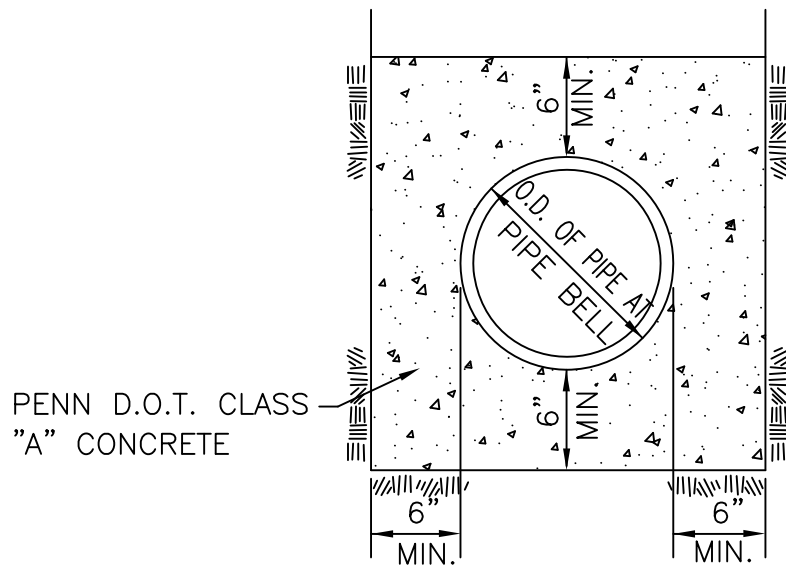
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

CASING DETAILS FOR WATERLINE  
ROADWAY CROSSINGS

SCALE: NONE

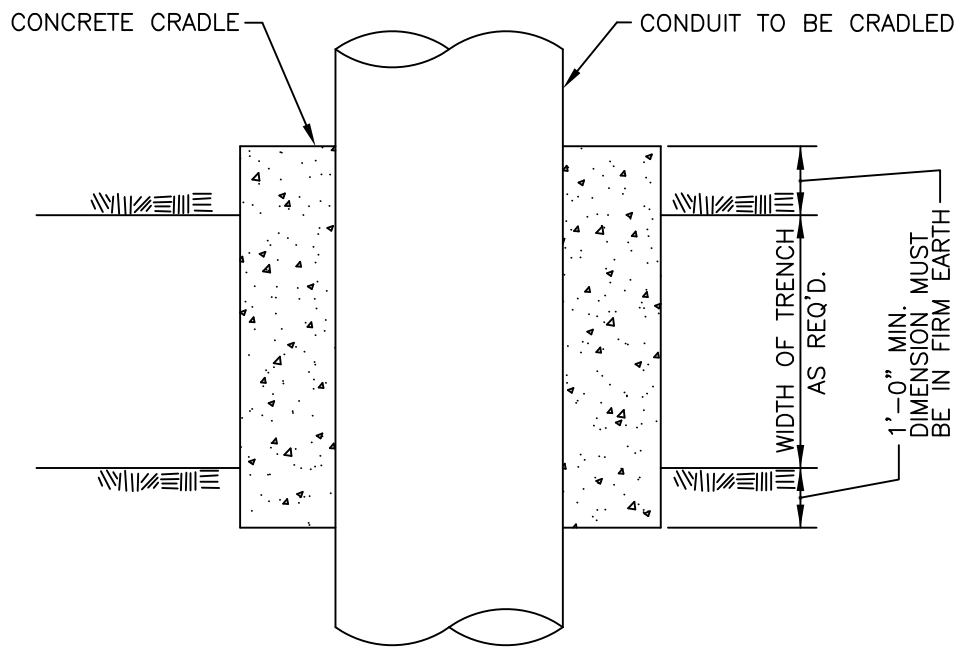
DATE: 1-20-05

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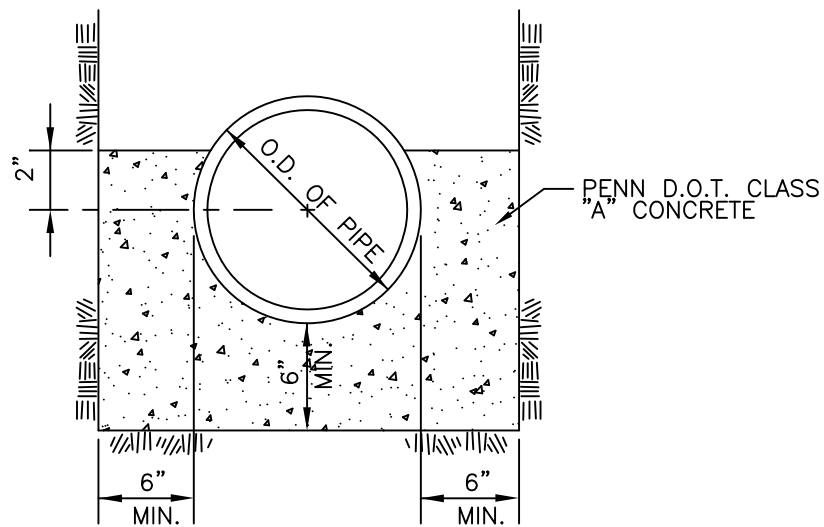


NOTE:  
 CONFIRM 6" MINIMUM ENCASEMENT DIMENSION WITH ACA.  
 ACA TO DETERMINE FINAL ENCASEMENT DIMENSION.



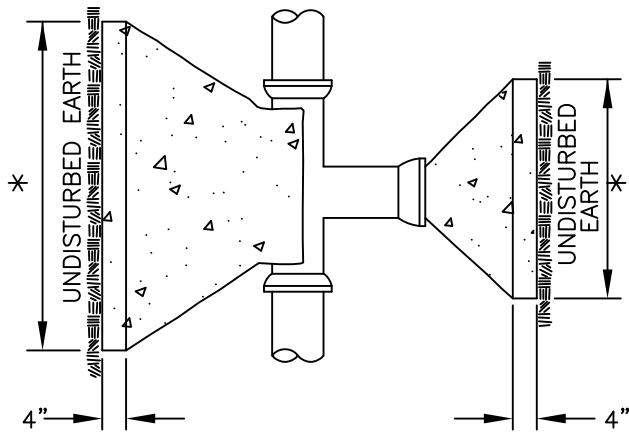


PLAN

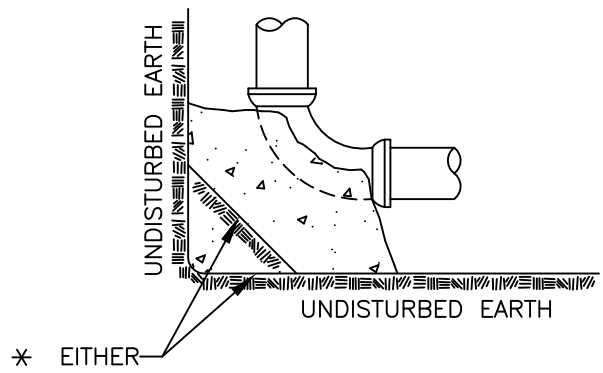


SECTION

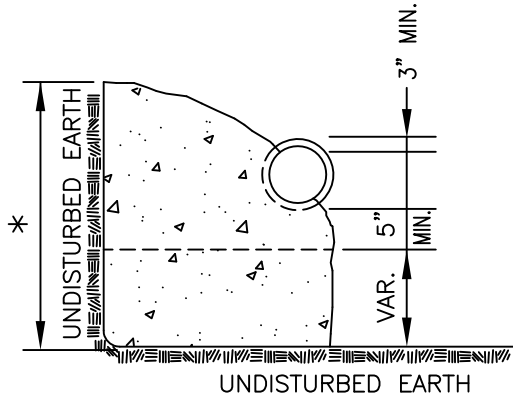
**NOTE:**  
 CONCRETE CRADLE SHALL BE PROVIDED TO SUPPORT EXISTING STORM SEWER, SANITARY SEWER, AND WATERLINE PIPING AT ALL CROSSINGS WHERE THE TRANSMISSION MAIN IS BELOW AND WITHIN 18" OF THESE EXISTING UTILITIES.



PLAN-TEES, WYES AND PLUGS



PLAN-BENDS



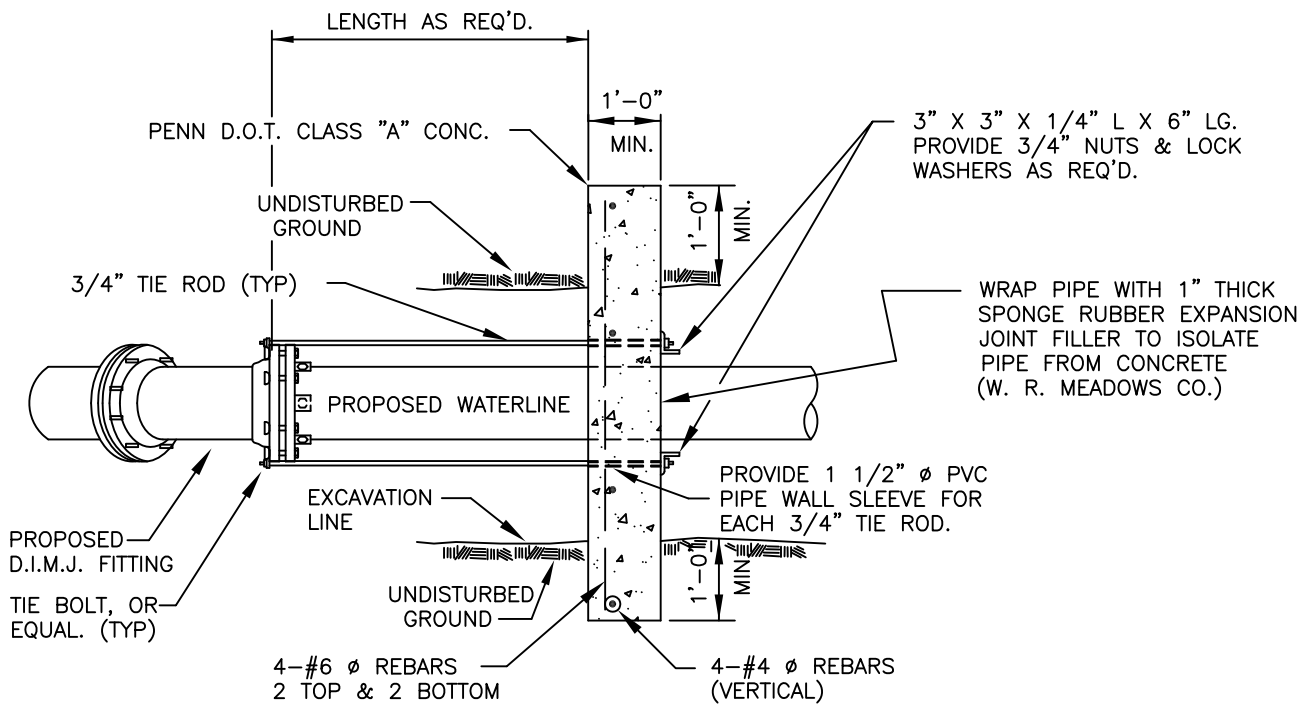
ELEVATION-TEES, WYES AND BENDS

NOTES:

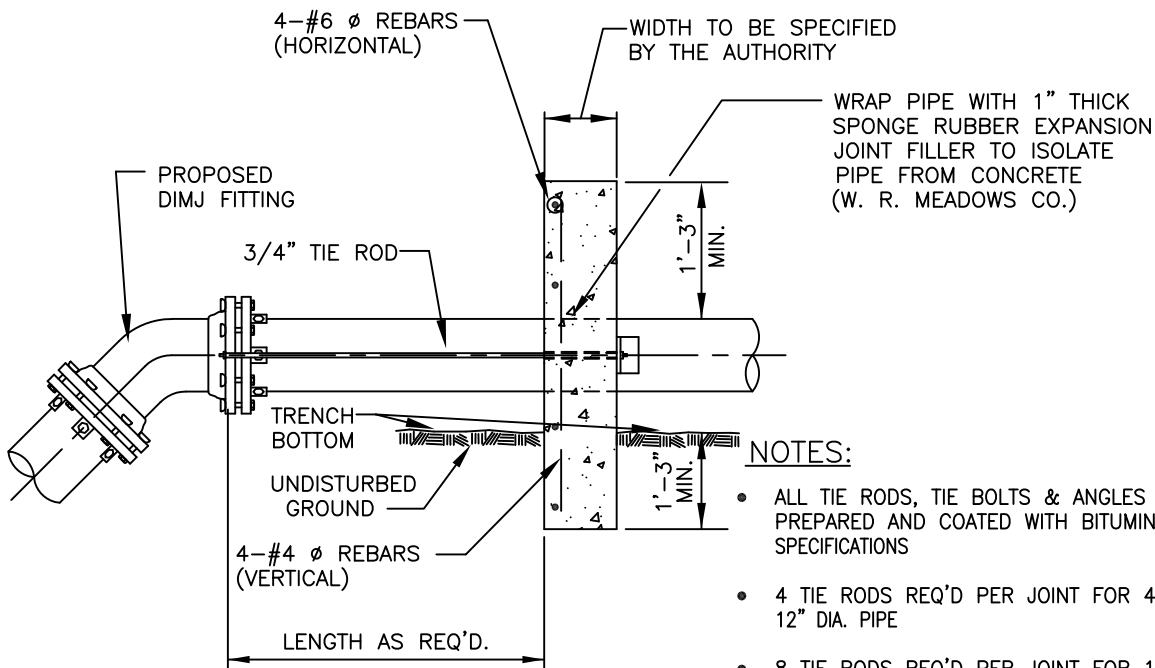
- ALL TEES, WYES, CROSSES, PLUGS AND BENDS SHALL BE BLOCKED AGAINST FIRM GROUND WITH CONCRETE.
- EARTH PRESSURE FIGURED AT 4,000 PSF. AREA OF BLOCK MUST BE INCREASED PROPORTIONATELY IF EARTH ENCOUNTERED WILL NOT WITHSTAND THIS PRESSURE IN THE OPINION OF THE AUTHORITY.
- TABLE IS BASED UPON 225 PSI OR 150 LBS. WORKING PRESSURE PLUS 50% WATER HAMMER.

\* = FACE AREA NOT LESS THAN SHOWN IN TABLE BELOW.

PIPE SIZE (IN.)	AREA (SQ.IN.)	TOTAL FORCE (LBS.)	AREA OF BLOCK IN SQ. FT.				
			TEES & PLUGS	90° BENDS	45° BENDS	22-1/2° BENDS	11-1/4° BENDS
4	12.57	2,827	1.0	1.0	1.0	1.0	1.0
6	28.27	6,361	1.6	2.3	1.2	1.0	1.0
8	50.26	11,308	2.8	4.0	2.2	1.1	1.0
10	78.54	17,672	4.4	6.3	3.4	1.7	1.0
12	113.16	25,461	6.4	9.0	4.9	3.0	1.3
14	153.94	34,637	8.7	12.3	6.6	3.4	1.7
16	201.06	45,239	11.3	16.0	8.7	4.4	2.2
18	254.47	57,256	14.3	20.3	11.0	5.6	2.8
20	314.16	70,686	17.7	25.0	13.5	6.9	3.5
24	452.39	101,788	25.4	36.0	19.5	9.9	5.0



PLAN



ELEVATION

**NOTES:**

- ALL TIE RODS, TIE BOLTS & ANGLES SHALL BE SURFACE PREPARED AND COATED WITH BITUMINOUS COATING PER SPECIFICATIONS
- 4 TIE RODS REQ'D PER JOINT FOR 4", 6", 8", 10" AND 12" DIA. PIPE
- 8 TIE RODS REQ'D PER JOINT FOR 16" DIA. PIPE
- 10 TIE RODS REQ'D PER JOINT FOR 20" DIA. PIPE
- 12 TIE RODS REQ'D PER JOINT FOR 24" DIA. PIPE
- ALL CONC. ANCHORS MUST BE CURED A MIN. OF 7 DAYS BEFORE TIGHTENING TIE RODS.
- TIE RODS, NUTS, BOLTS, COUPLINGS, AND WASHERS SHALL BE SUPER STAR SYSTEM BY STAR SUPPLY CO., COLUMBUS, OH OR, APPROVED EQUAL AND INSTALLED AS PER MANUFACTURER'S RECCOMANDATIONS.

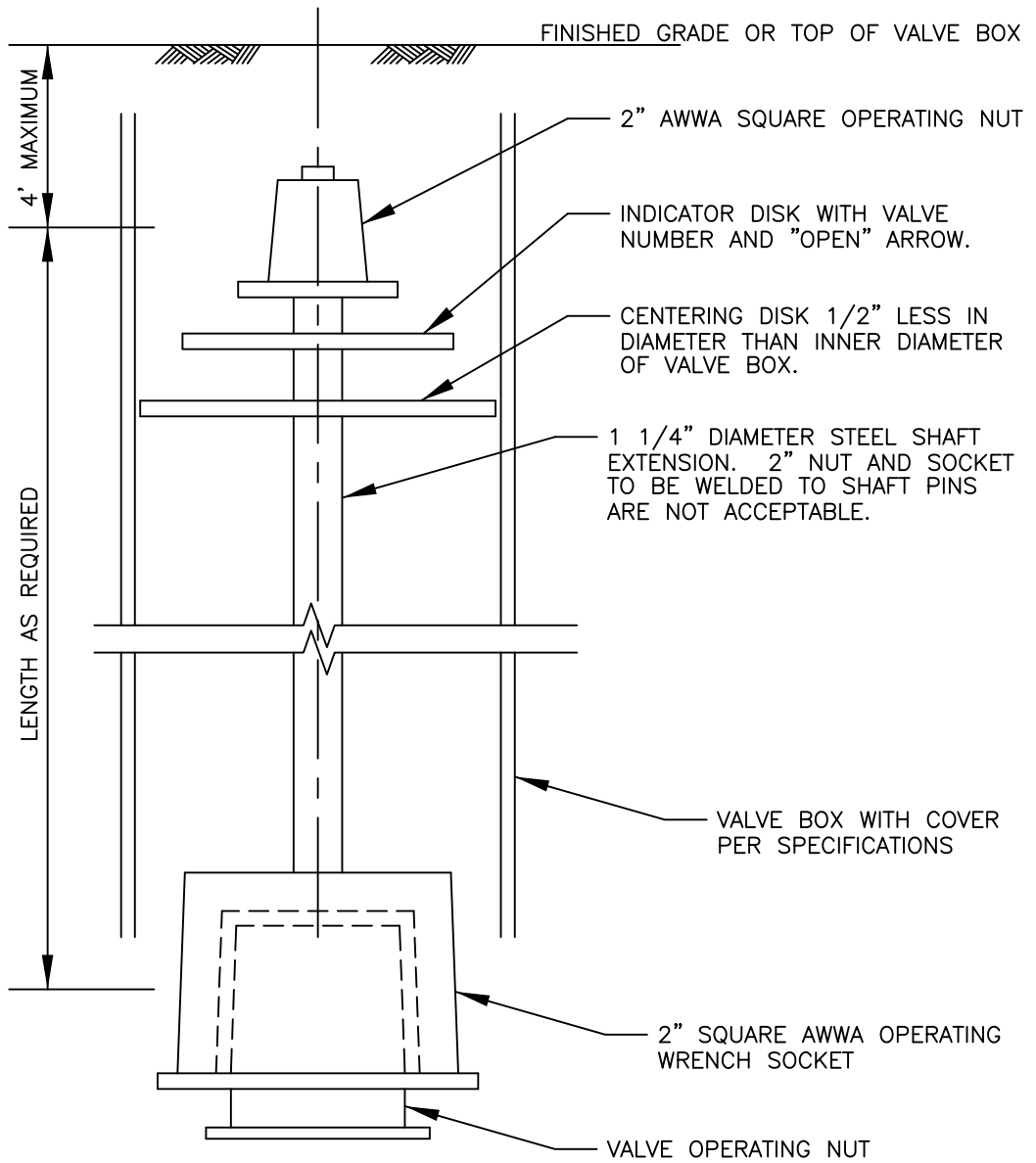
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

TYPICAL REINFORCED  
CONCRETE DEADMAN

SCALE: NONE

DATE: 1-20-05

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ALTOONA CITY AUTHORITY  
STANDARD DETAIL

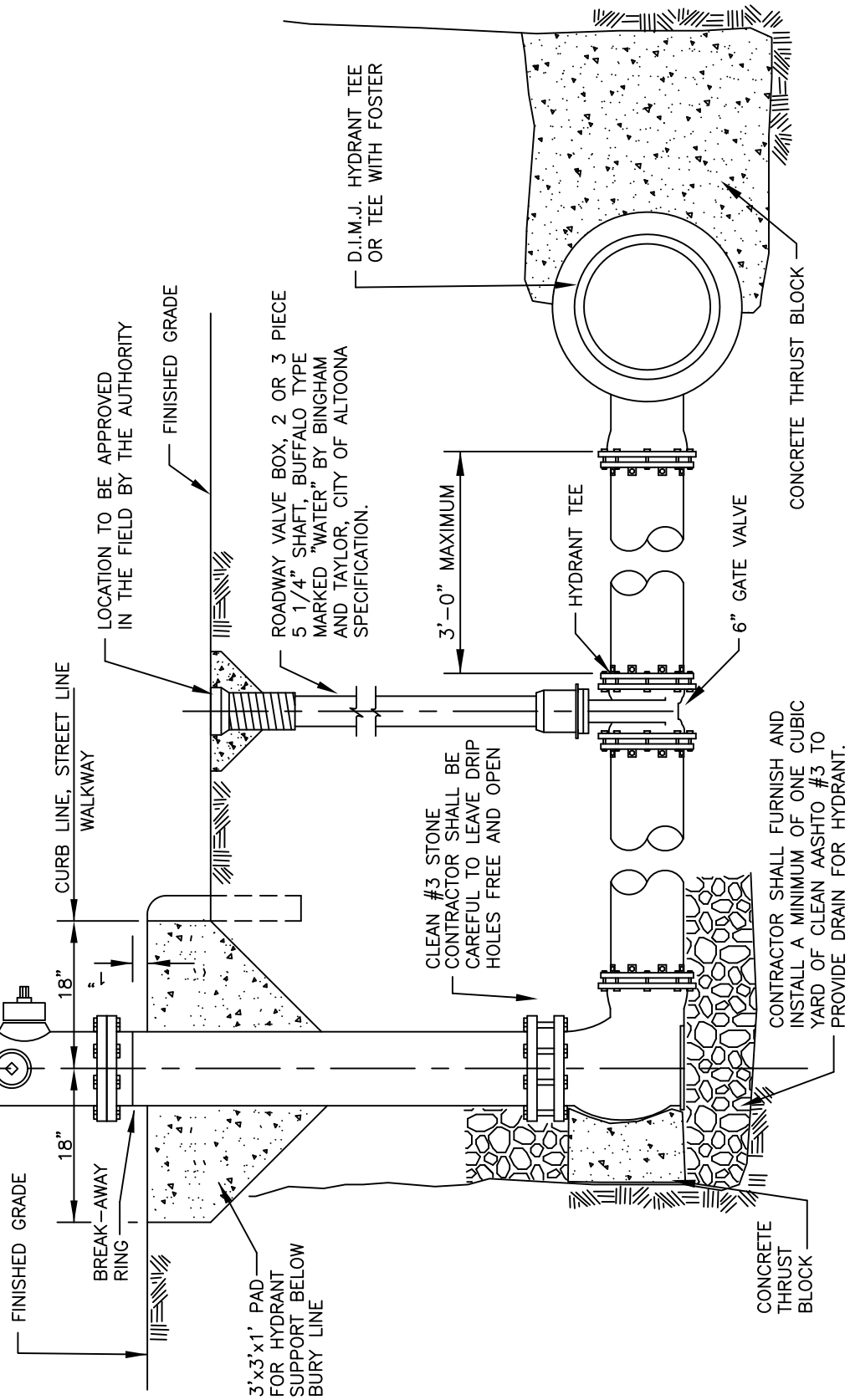
EXTENDED VALVE OPERATOR

SCALE: NONE

DATE: 1-20-05

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ALL HYDRANTS SHALL BE AMERICAN DARLING B62B1 FIRE HYDRANT WITH 5 1/4" VALVE OPENING; DEPTH OF BURY AS SHOWN ON THE DRAWINGS; TWO (2) 2 1/2" HOSE NOZZLES (GA6-296); ONE (1) 4 1/2" PUMPER NOZZLE (GA-NST); A 1 1/2" PENTAGON OPERATING NUT, OPEN LEFT; A 6" MECHANICAL JOINT SHOE WITH ACCESSORIES; HYDRANT TO BE PAINTED THE COLOR YELLOW WITHOUT CHAIN CAPS (COLOR TO BE CONFIRMED WITH THE AUTHORITY). HYDRANT MUST MEET PITTSBURGH #6 THREAD SPECIFICATIONS.



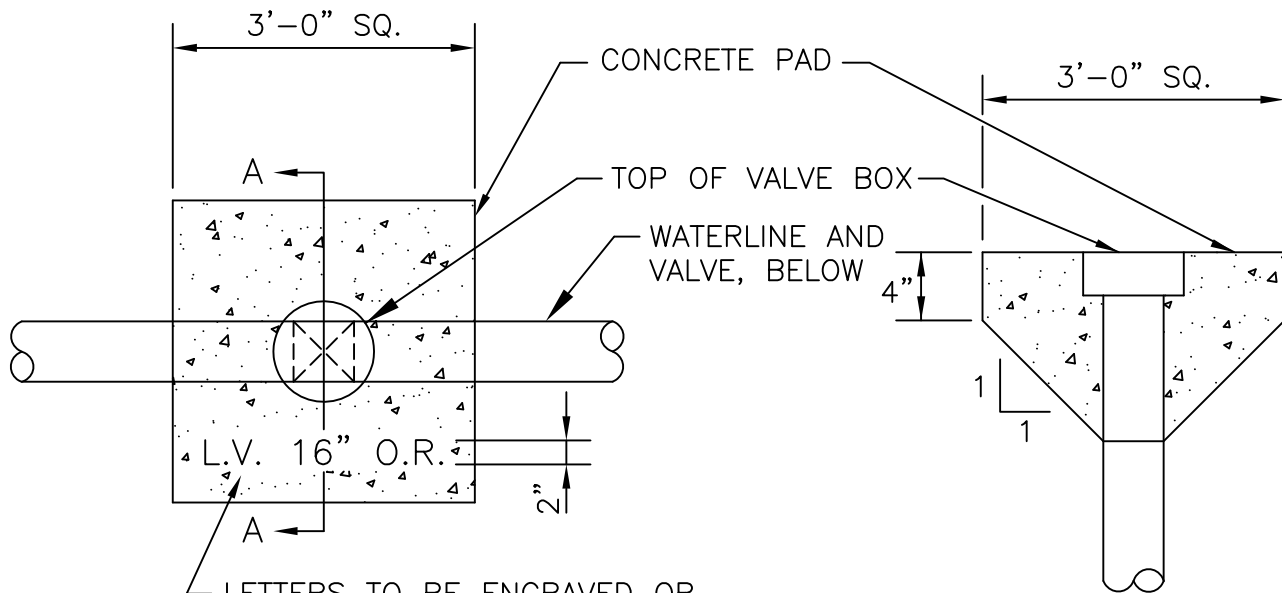
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

TYPICAL HYDRANT  
INSTALLATION

SCALE: NONE

DATE: 1-20-05

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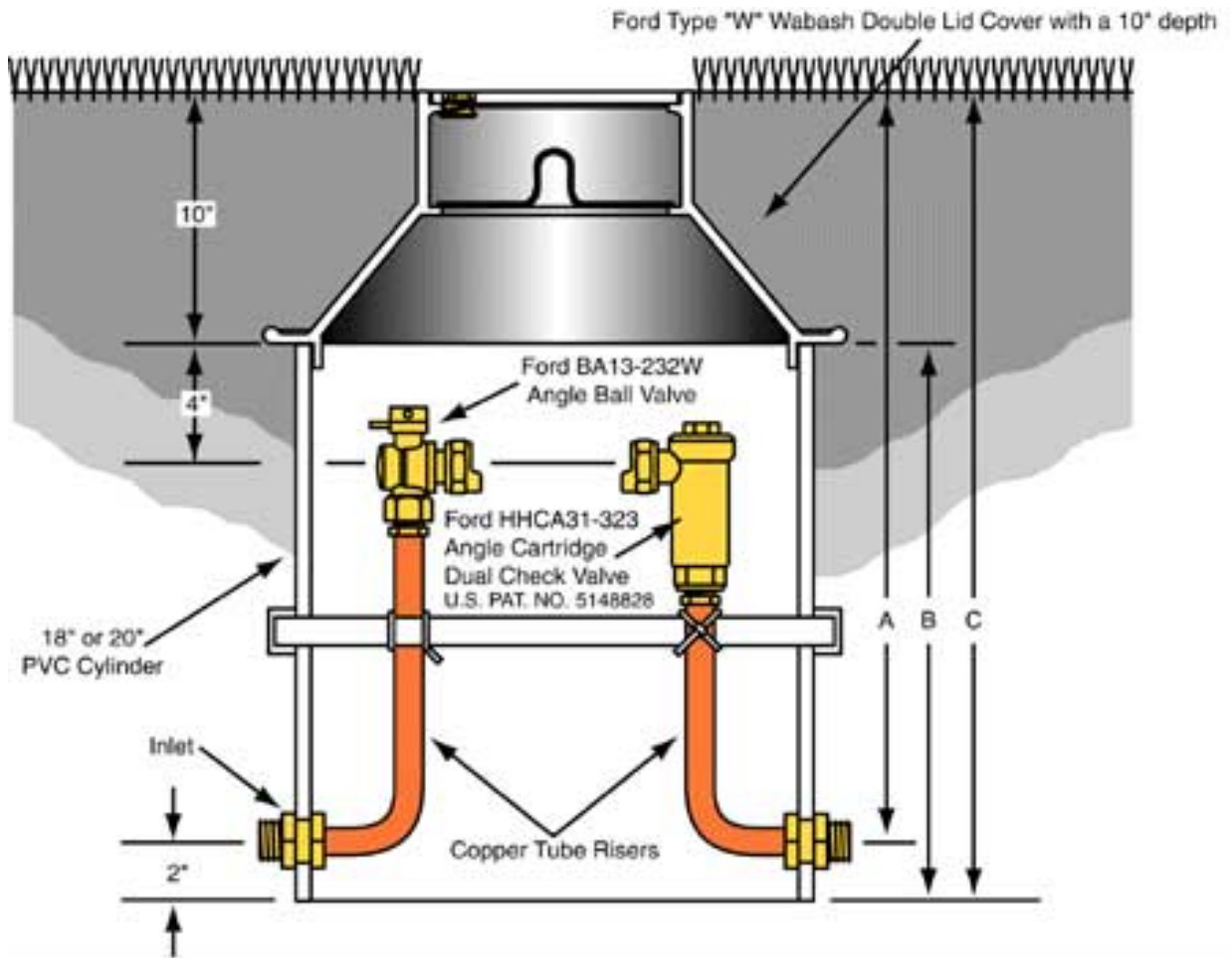
LETTERS TO BE ENGRAVED OR STAMPED ON PAD (PAINTING OF LETTERS IS PROHIBITED), SEE ENGINEER FOR APPLICABLE ITEM DESCRIPTION.

SECTION A-A

NOTES:

1. REQUIRED AT ALL VALVES IN NON-PAVED LOCATIONS OR AS DETERMINED BY ACA.

PLASTIC PIT SETTER DESIGN FOR  
DOUBLE LID TYPE (COVER WITH A 10" DEPTH)



A = SERVICE LINE DEPTH  
B = CYLINDER LENGTH  
C = TOTAL PIT DEPTH

NOTE: TRAFFIC STYLE LIDS REQUIRED IN PAVED AREAS OR AREAS OF FUTURE PAVEMENT.

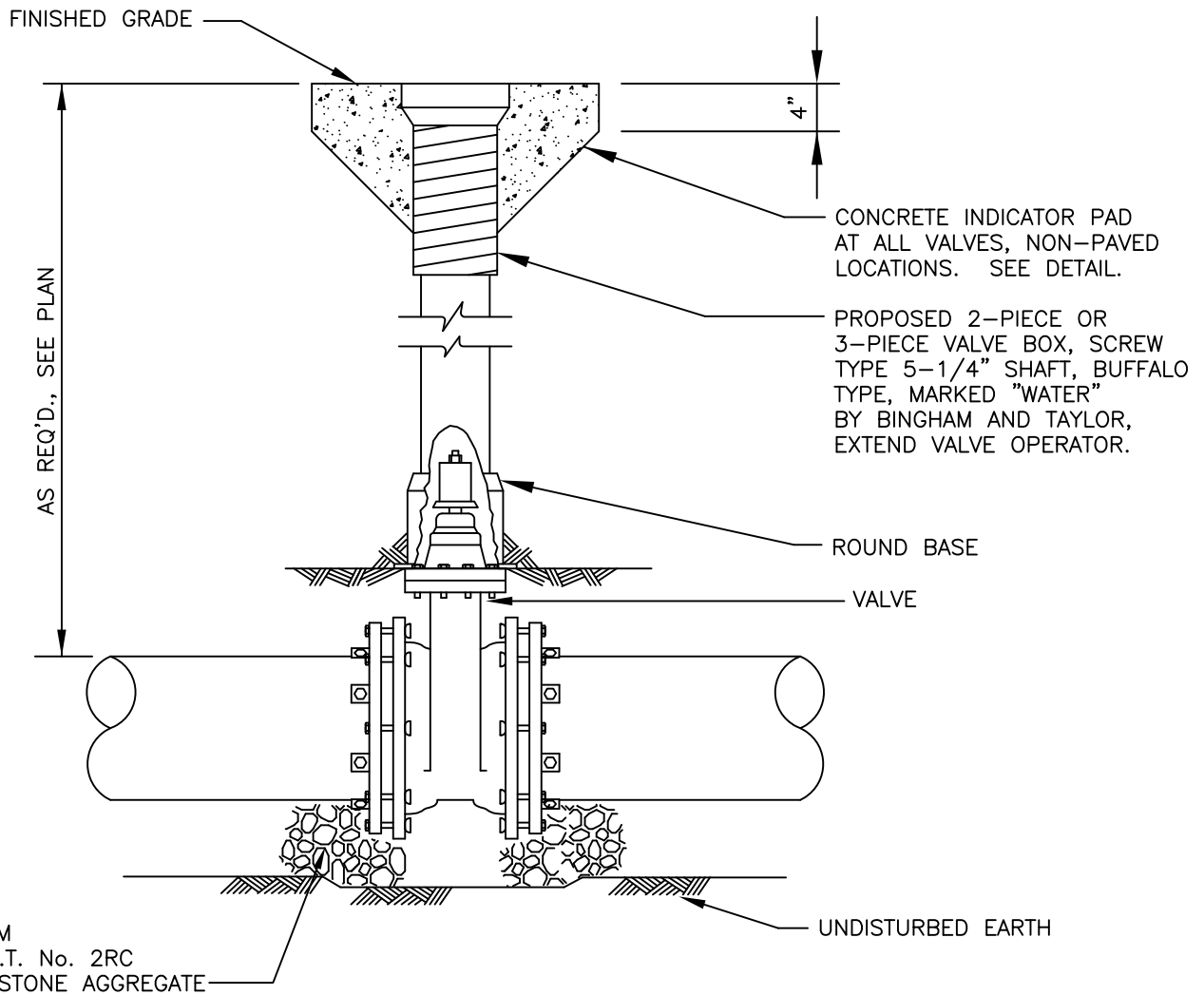
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

PLASTIC PIT SETTER  
FOR COLD CLIMATES

SCALE: NONE

DATE: 1-20-05

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NOTE:

- VALVE BOX NOT TO REST OR COME IN CONTACT WITH VALVE
- VALVE TO BE MANUFACTURED BY AMERICAN DARLING 2500 SERIES C515
- THE DIRECTION OF THE VALVE OPENING IS TO BE DETERMINED BY AUTHORITY

ALTOONA CITY AUTHORITY  
STANDARD DETAIL

4" TO 36"  
ROADWAY VALVE BOX

SCALE: NONE

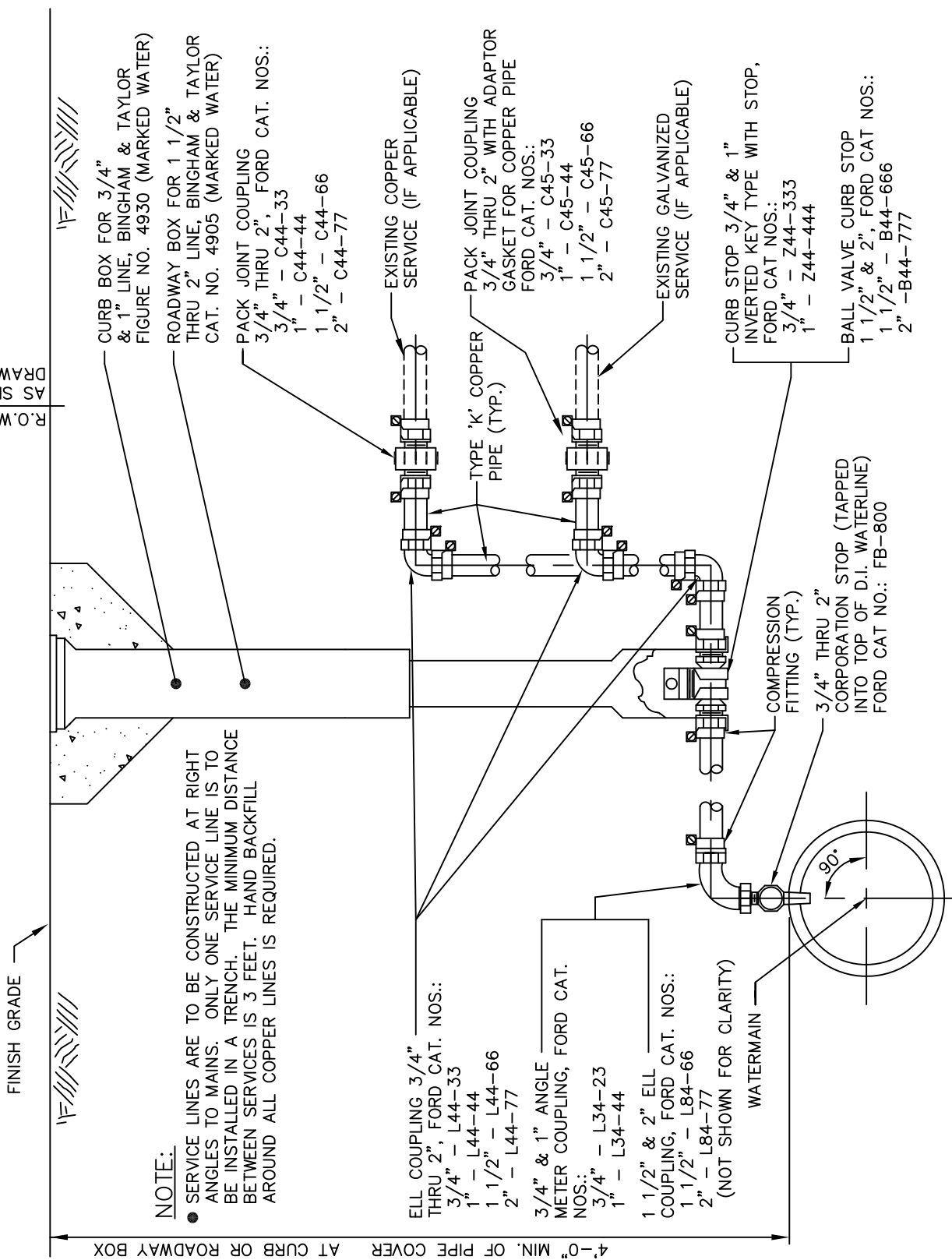
DATE: 1-20-05

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PRIVATE PROPERTY  
PUBLIC R.O.W.

ALL TAPS WILL BE MADE BY ALTOONA CITY AUTHORITY



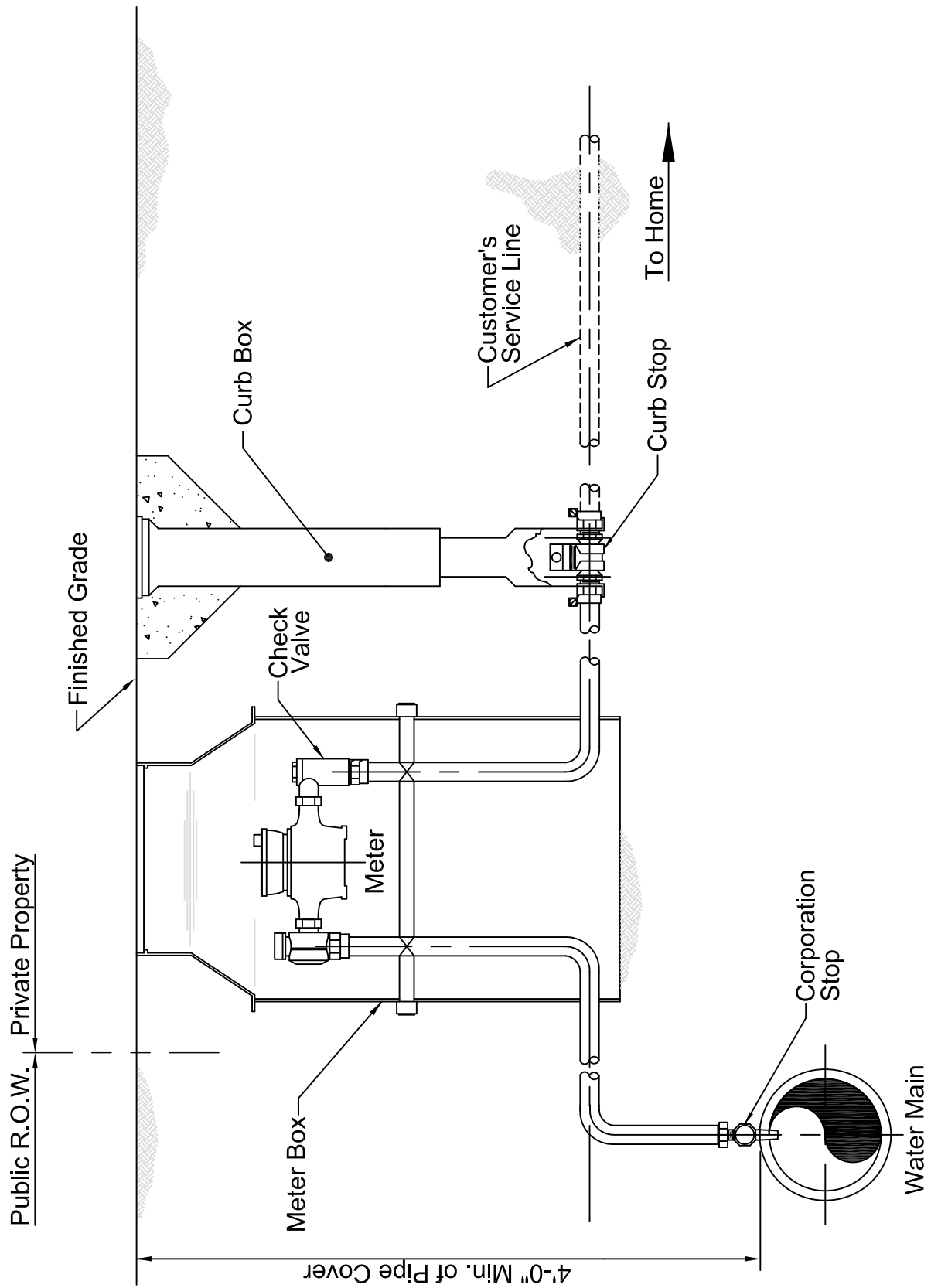
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

TYPICAL  
SERVICE CONNECTION

SCALE: NONE

DATE: 1-20-05

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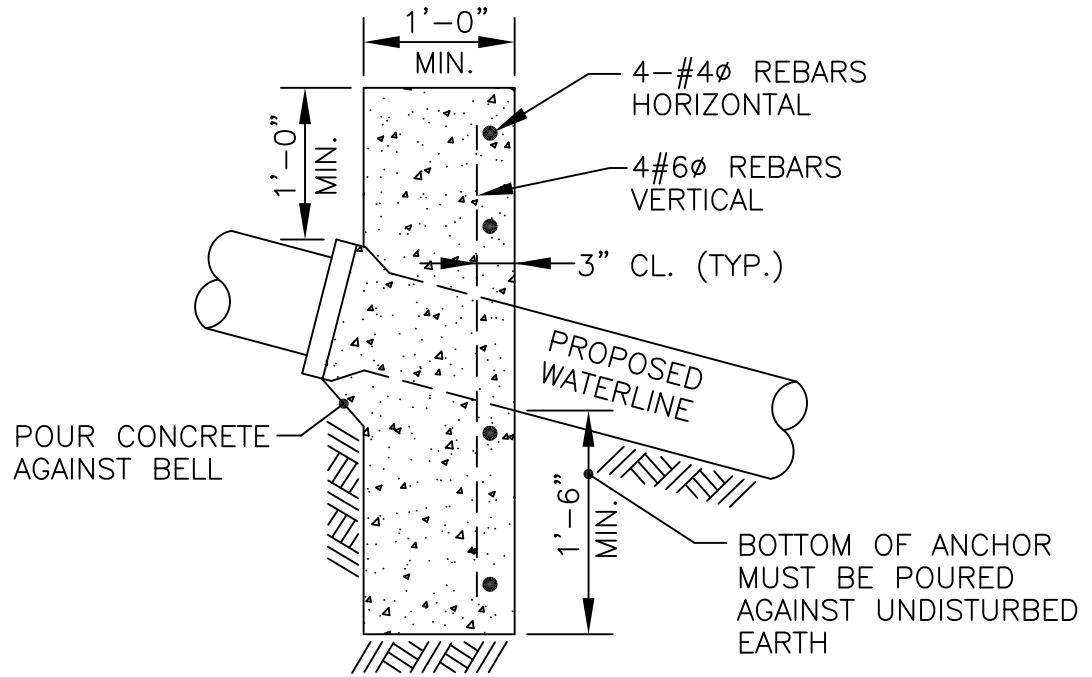
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

TYPICAL SERVICE CONNECTION  
WITH METER PIT

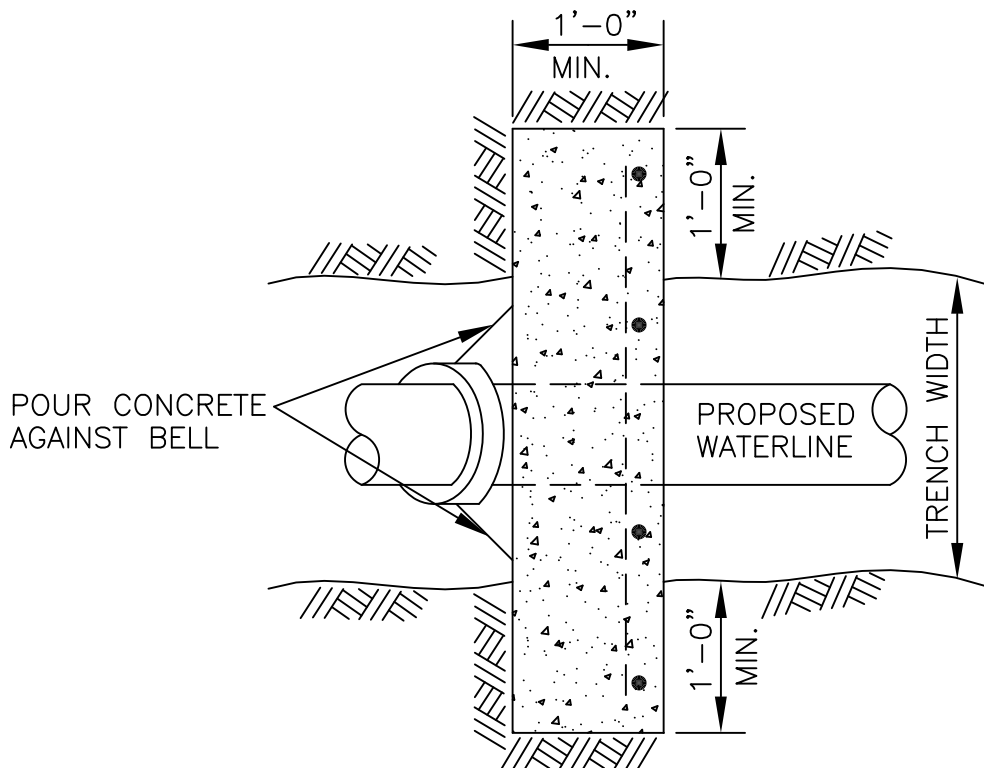
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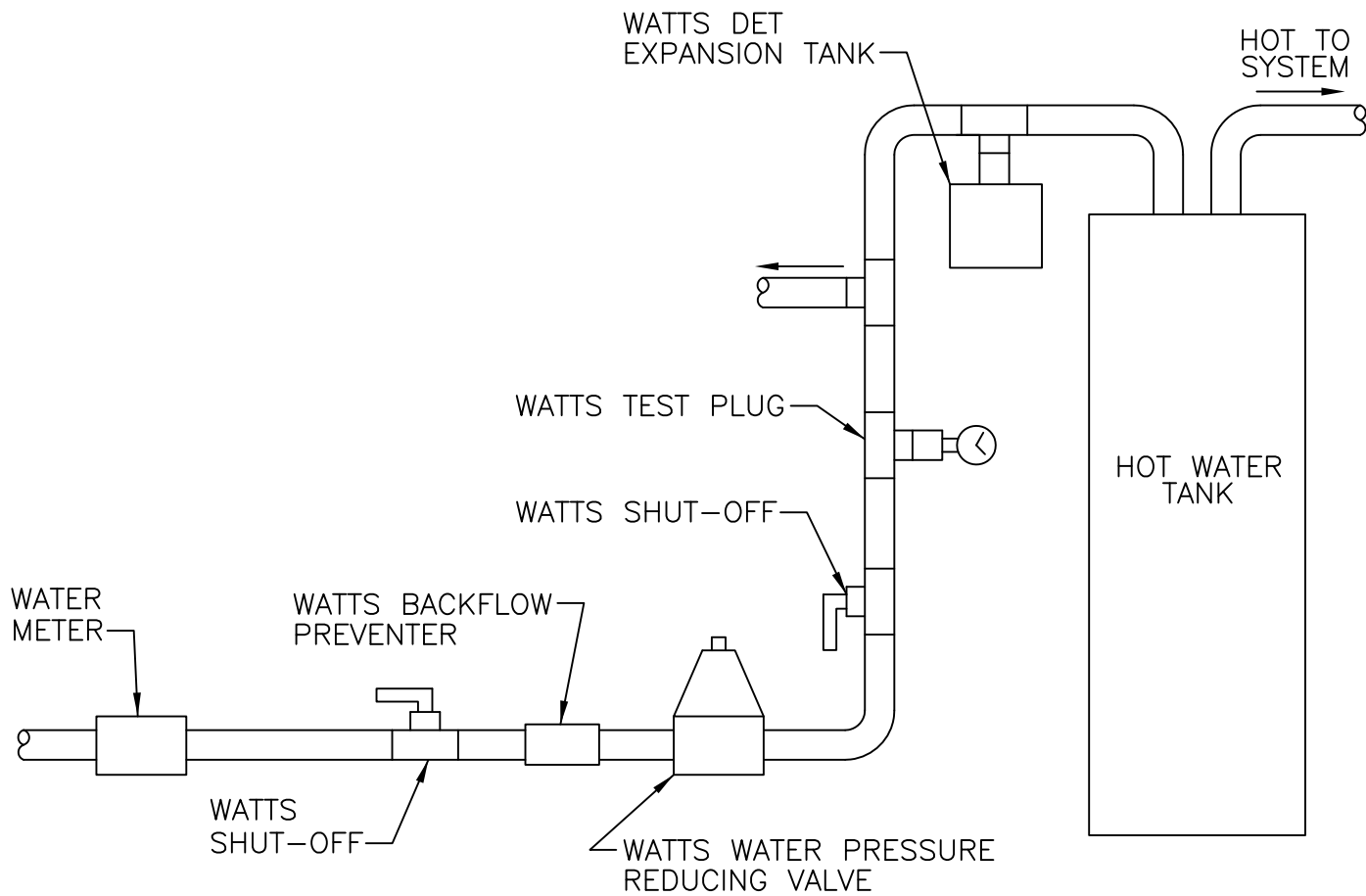
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ELEVATION



PLAN



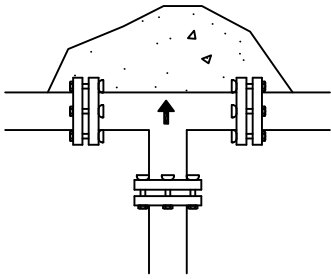
ALTOONA CITY AUTHORITY  
STANDARD DETAIL

THERMAL EXPANSION CONTROL

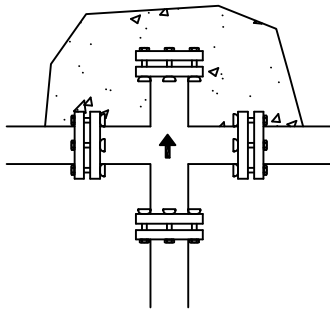
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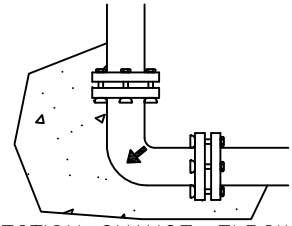
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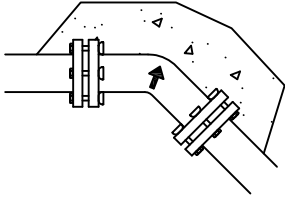
1. THRU LINE CONNECTION, TEE



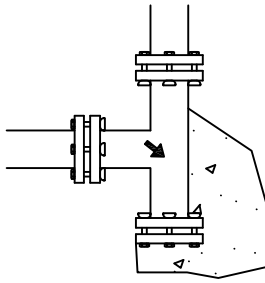
2. THRU LINE CONNECTION, CROSS USED AS TEE



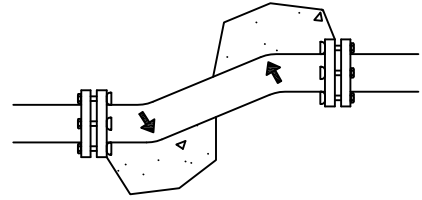
3. DIRECTION CHANGE, ELBOW



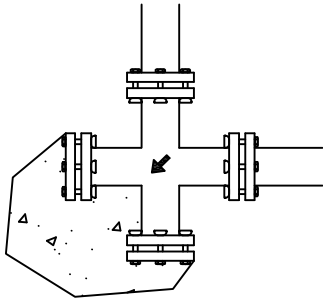
4. DIRECTION CHANGE VERTICAL, BEND



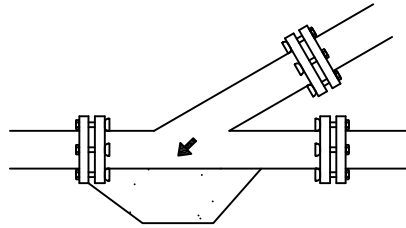
5. DIRECTION CHANGE, TEE USED AS ELBOW



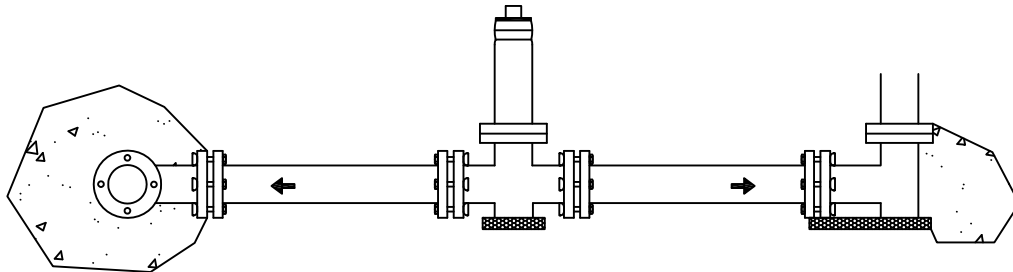
6. DIRECTION CHANGE



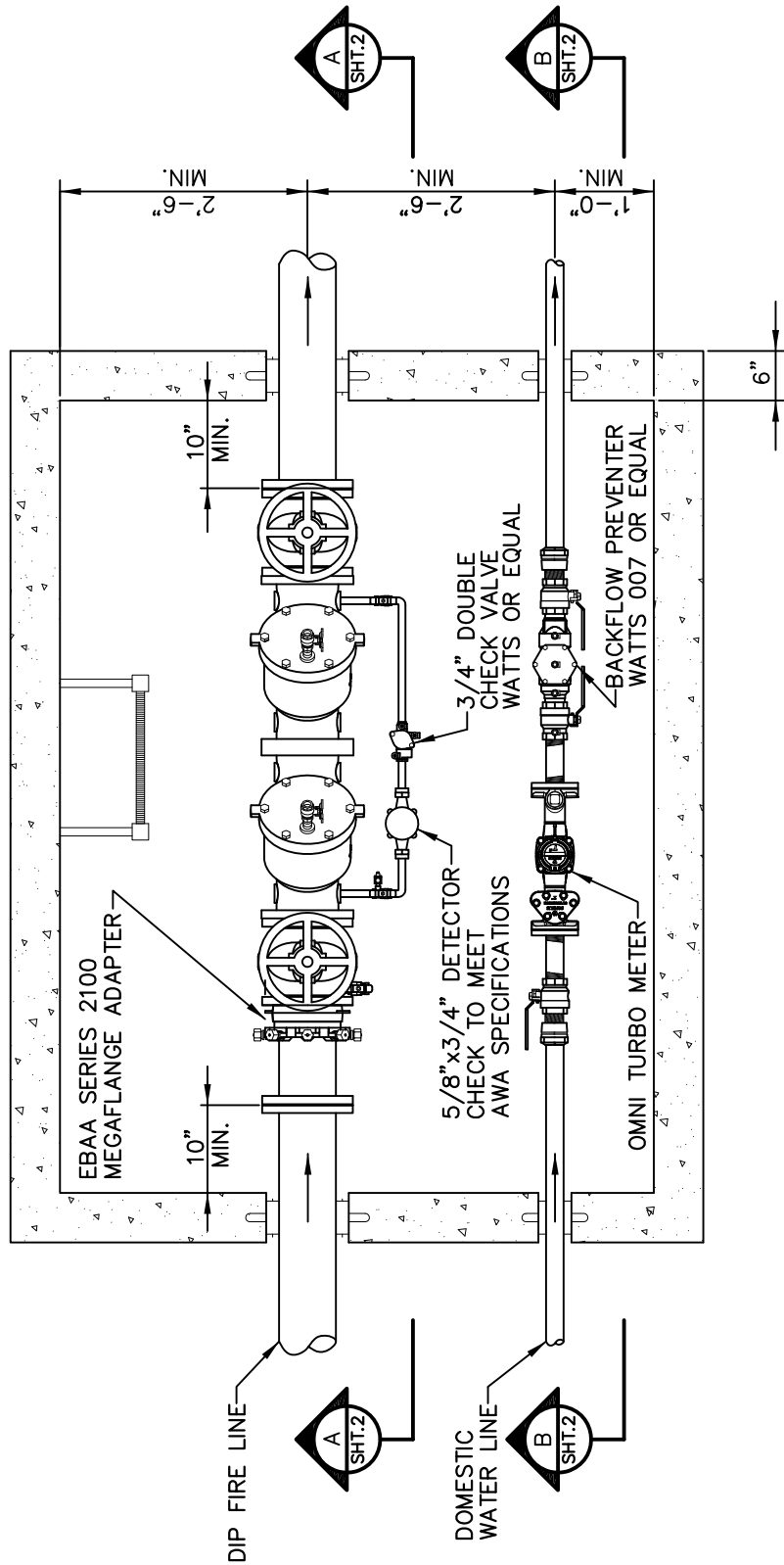
7. DIRECTION CHANGE, CROSS USED AS ELBOW



8. THRU LINE CONNECTION, WYE



9. HYDRANT RUNOUT



PLAN VIEW

ALTOONA WATER AUTHORITY  
STANDARD DETAIL

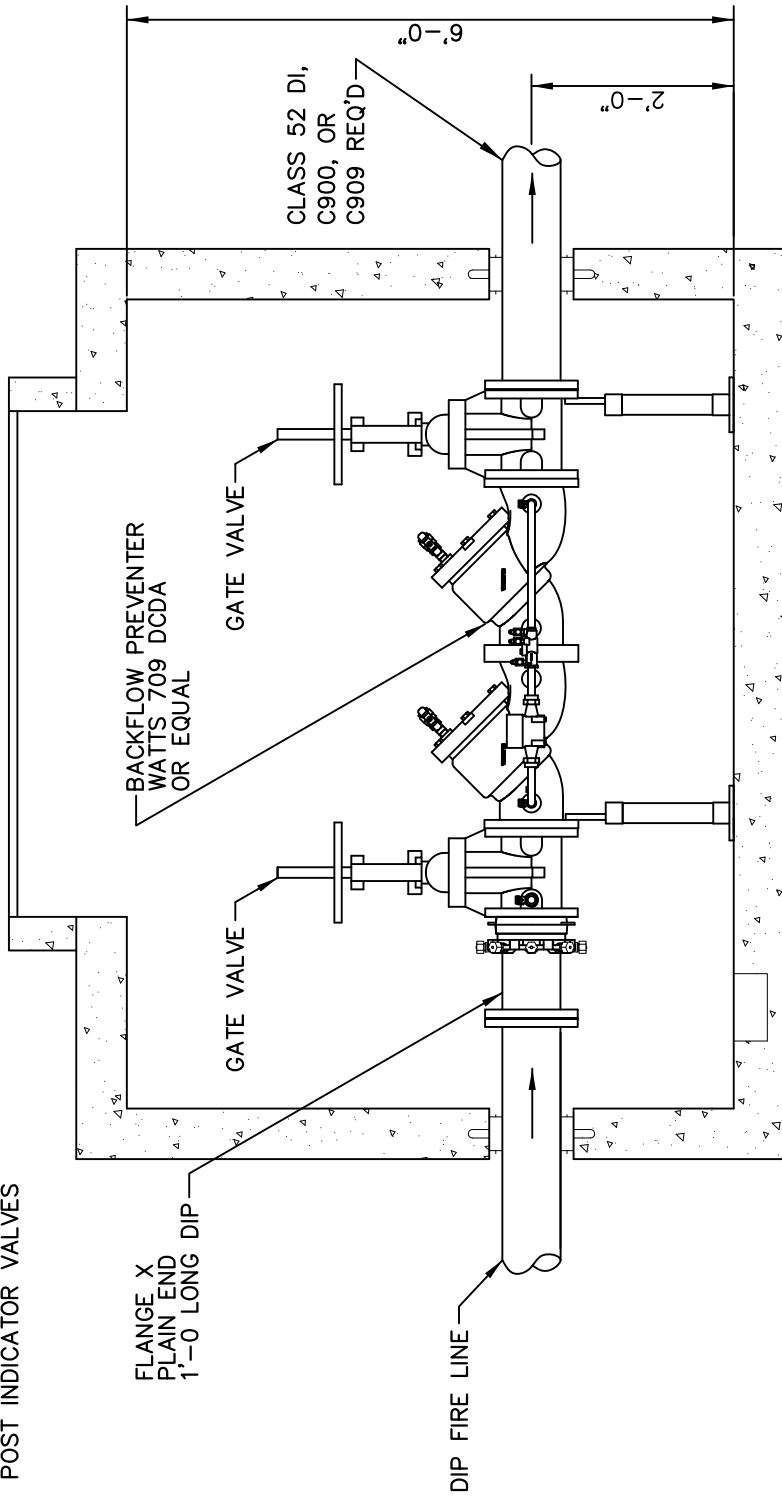
TYPICAL METER VAULT FOR  
SERVICES REQUIRING SEPARATE  
FIRE AND DOMESTIC CONNECTIONS

SCALE: NONE

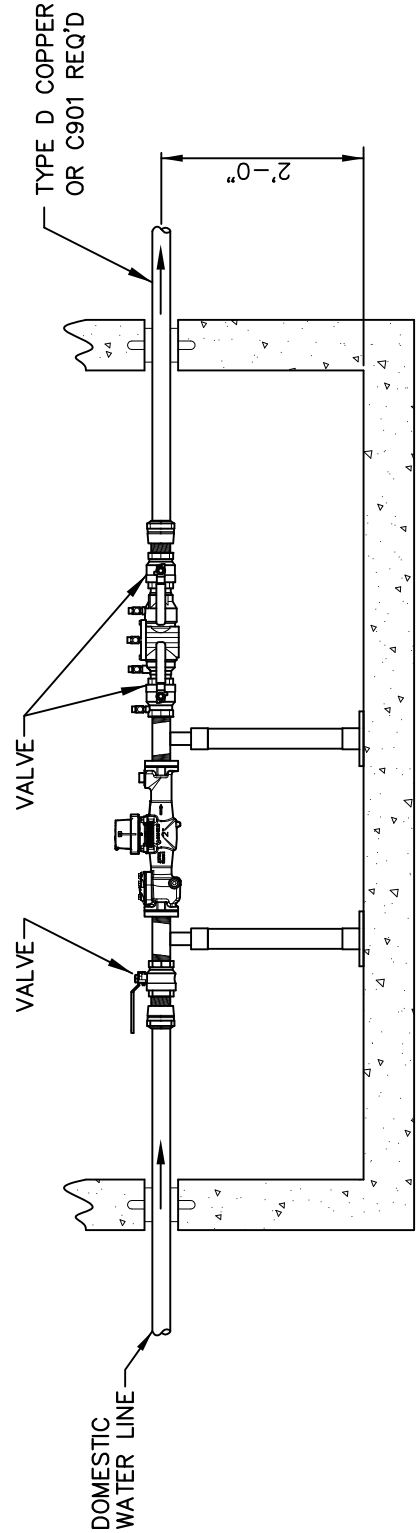
DATE: 05-31-12

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NOTE: CONSULT LOCAL MUNICIPALITY FOR ORDINANCES REQUIRING POST INDICATOR VALVES



SECTION A-A-SHT.1



SECTION B-B-SHT.1

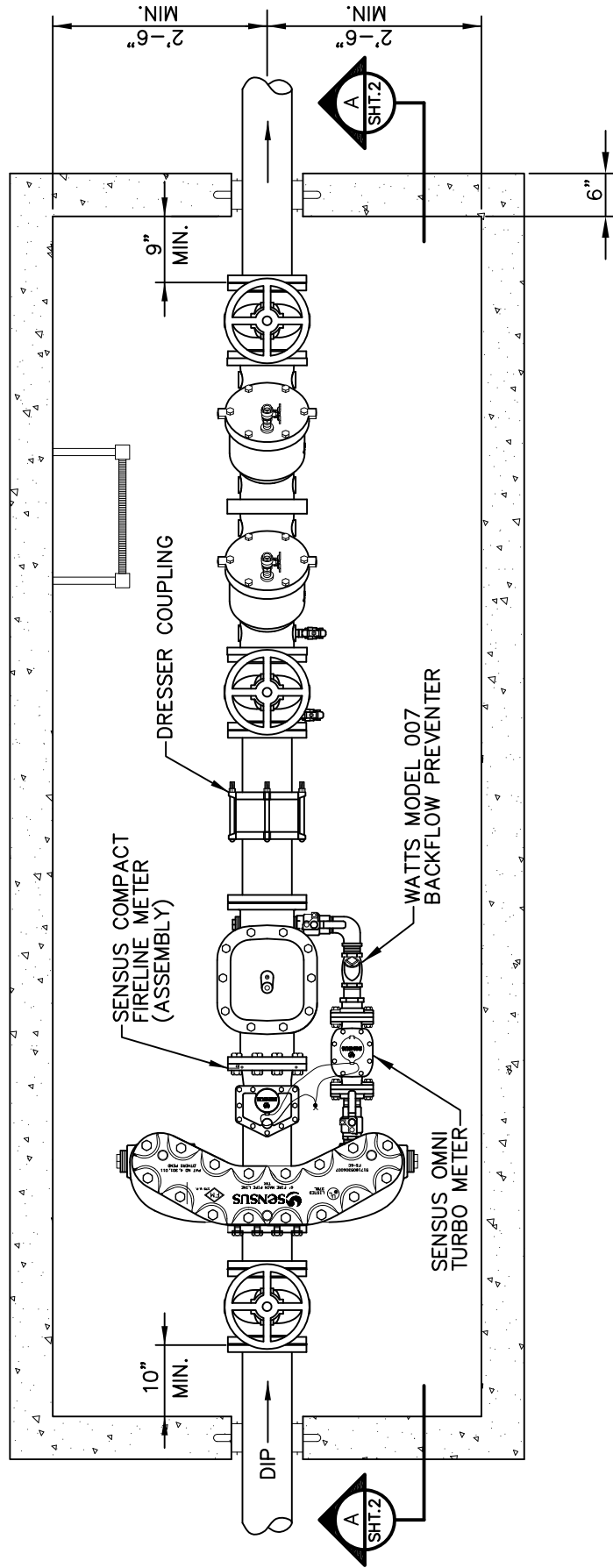
ALTOONA WATER AUTHORITY  
STANDARD DETAIL

TYPICAL METER VAULT FOR SERVICES REQUIRING SEPARATE FIRE AND DOMESTIC CONNECTIONS

SCALE: NONE

DATE: 07-27-12

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PLAN VIEW

ALTOONA WATER AUTHORITY  
STANDARD DETAIL

OPTIONAL METER VAULT FOR FIRE &  
DOMESTIC SERVICES REQUIRING GREATER  
THAN A 2" DOMESTIC WATER LINE

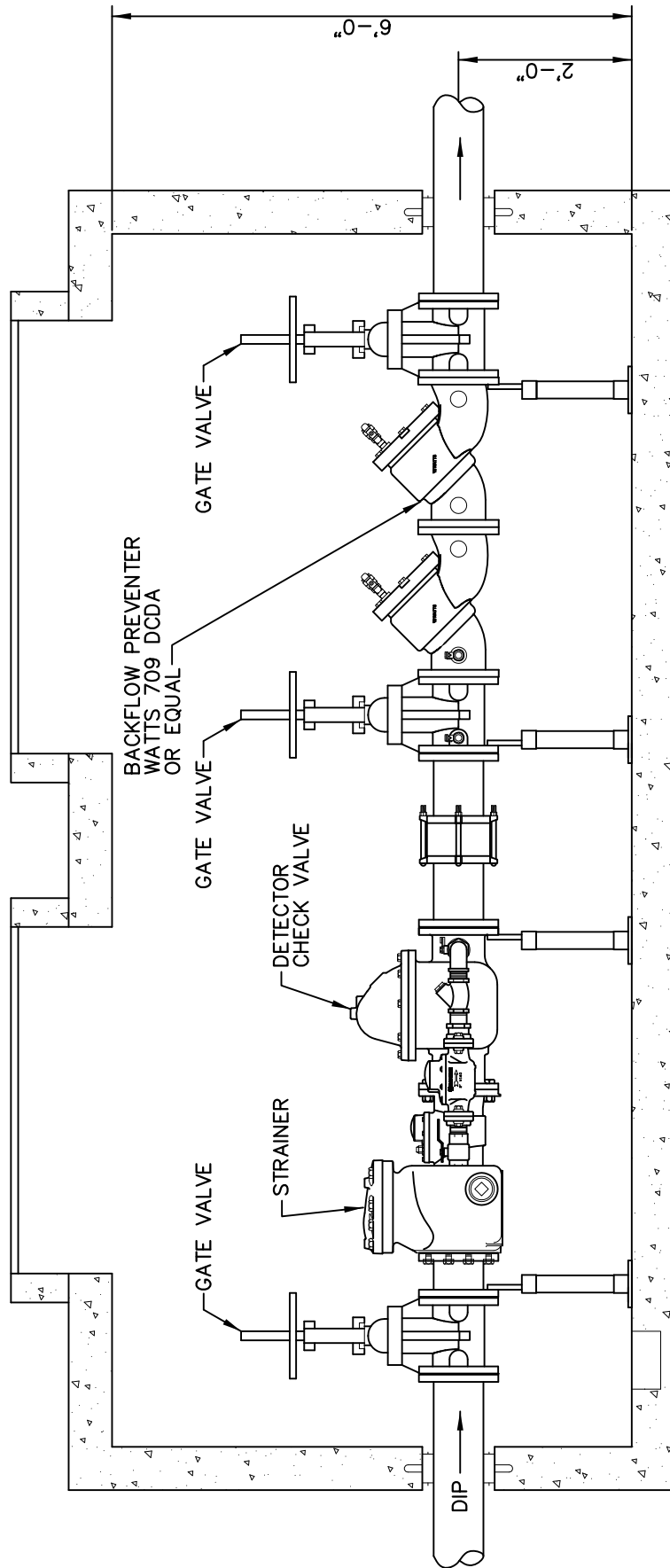
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DATE: 10-28-09

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NOTE: CONSULT LOCAL MUNICIPALITY  
FOR ORDINANCES REQUIRING  
POST INDICATOR VALVES



SECTION A-A-SHT.1

ALTOONA WATER AUTHORITY  
STANDARD DETAIL

OPTIONAL METER VAULT FOR FIRE &  
DOMESTIC SERVICES REQUIRING GREATER  
THAN A 2" DOMESTIC WATER LINE

SCALE: NONE

DATE: 10-28-09

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