



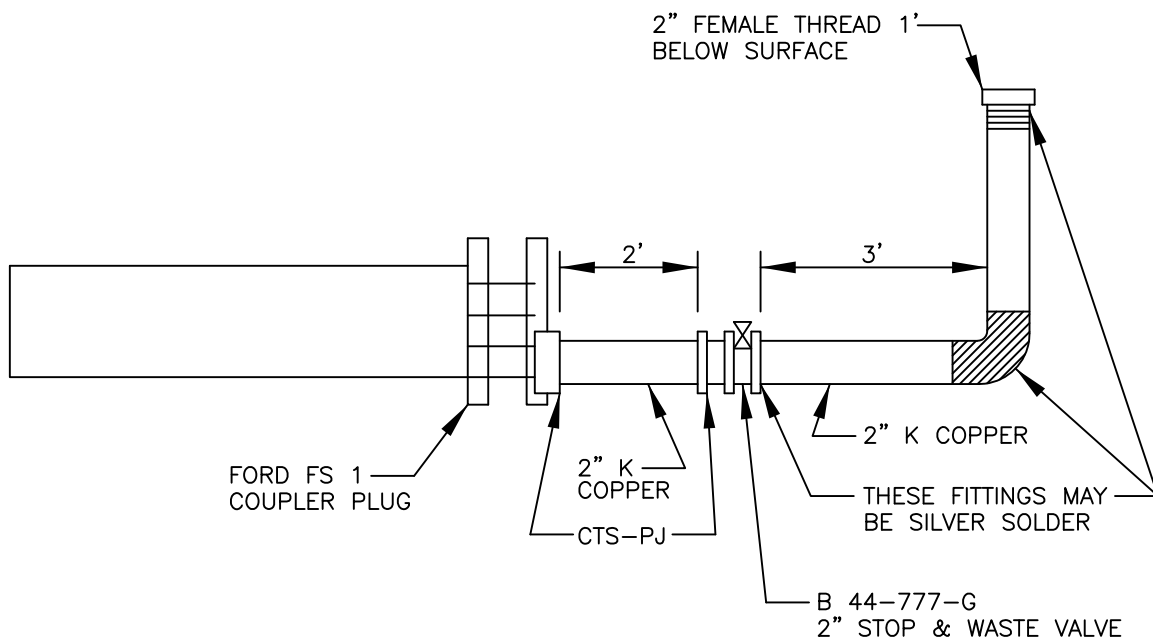
Altoona Water Authority

Construction Details

Last Revised May 16, 2012

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ALTOONA CITY AUTHORITY
STANDARD DETAIL

B & T 5 1/4" ROAD BOX ON
2" VALVE & STAND PIPE

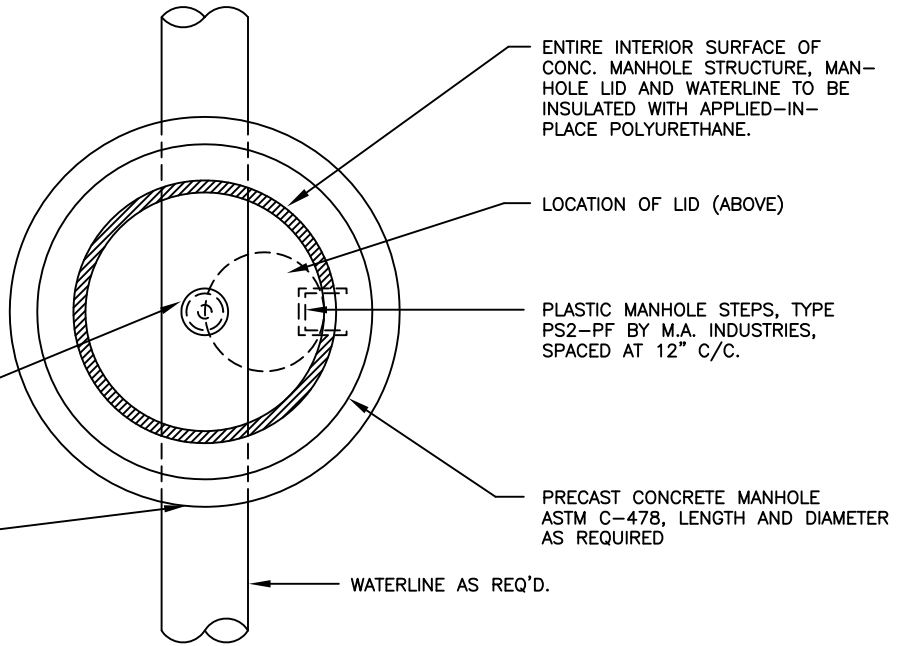
SCALE: NONE

DATE: 1-20-05

PAGE 1

NOTE:

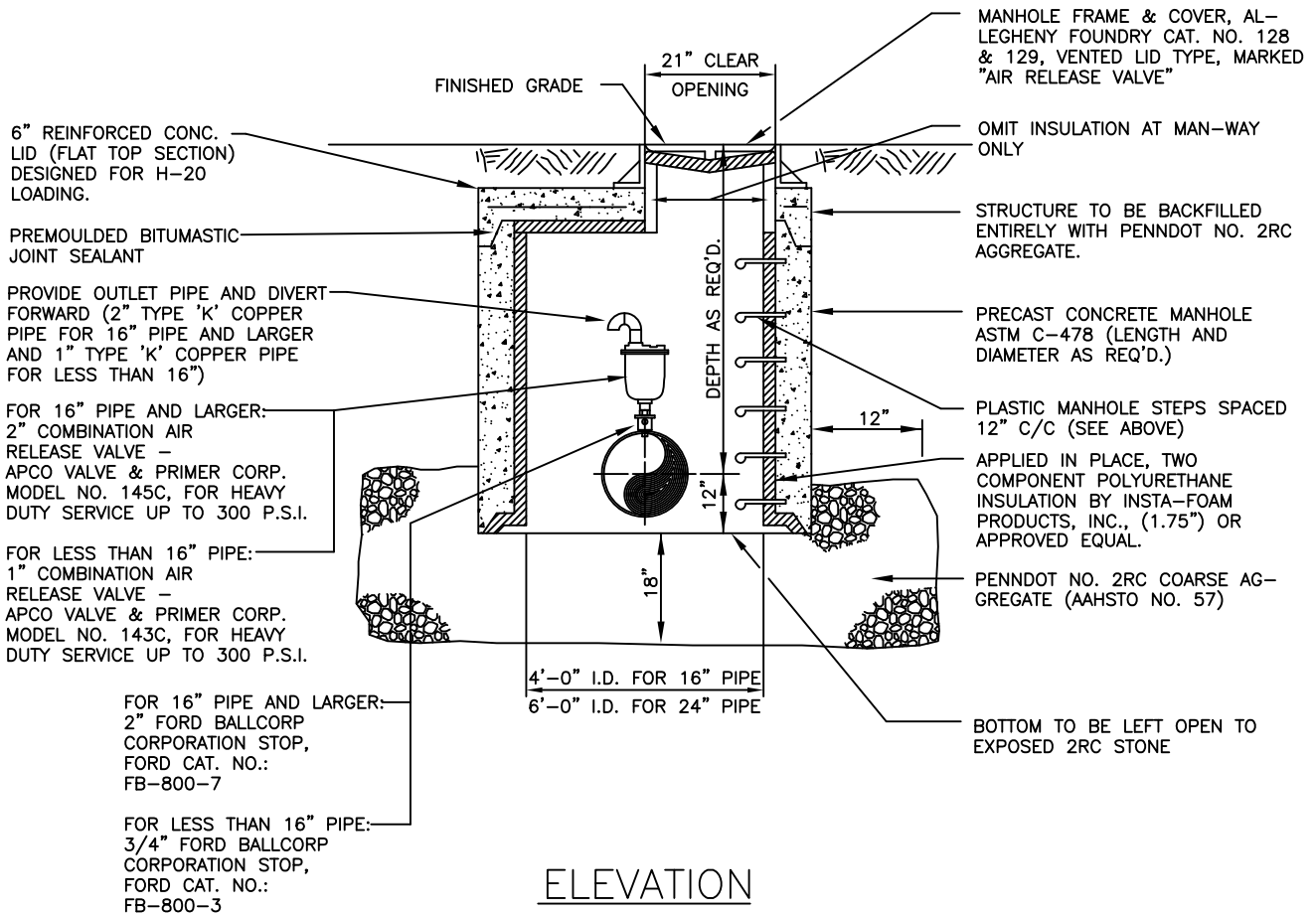
- ALL FERROUS METAL COMPONENTS OF VALVE VAULT TO BE COATED WITH BITUMASTIC COATING SYSTEM AS DIRECTED BY THE ENGINEER.



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)

PLAN



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

ELEVATION

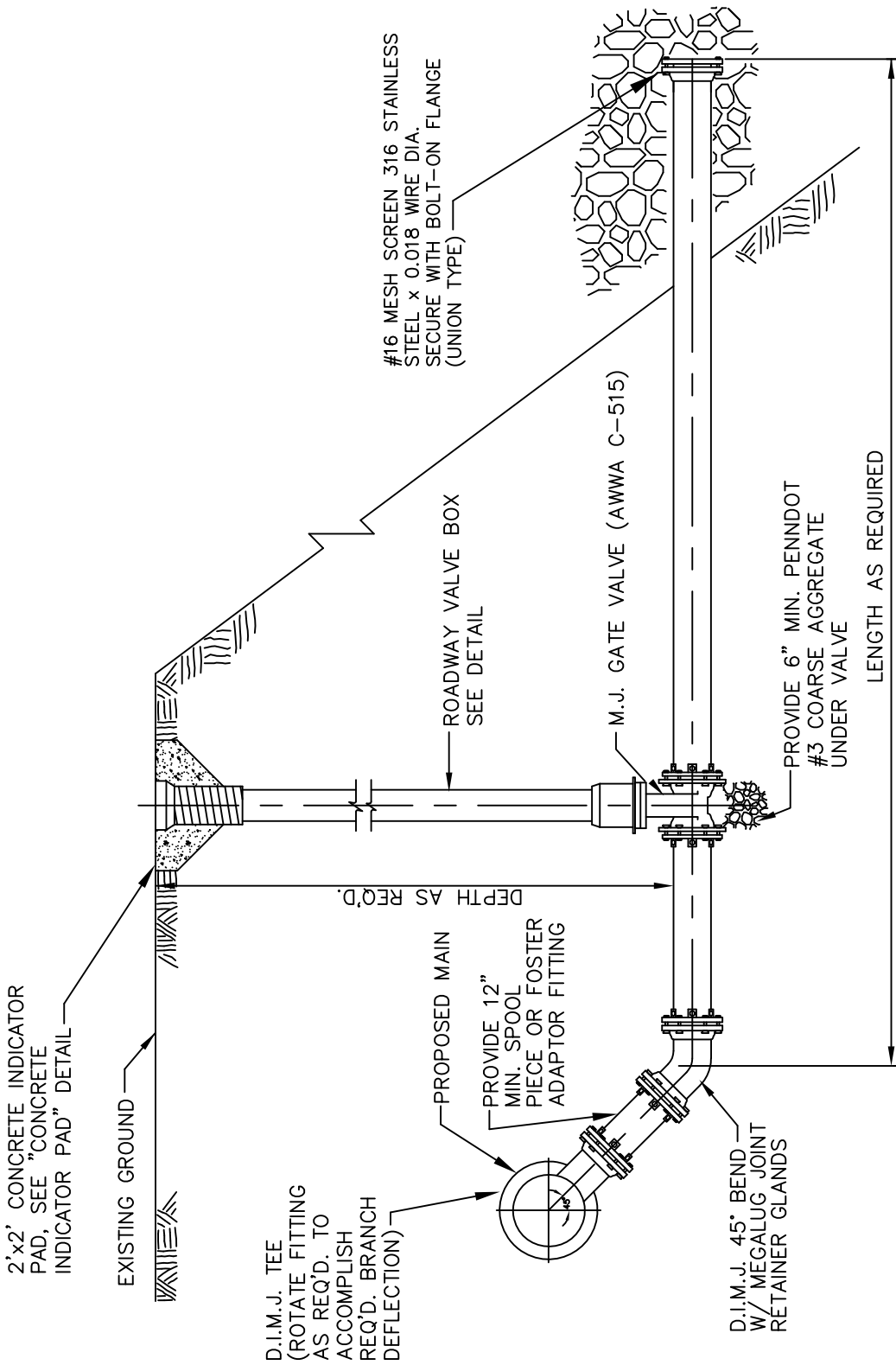
ALTOONA CITY AUTHORITY
STANDARD DETAIL

AIR RELEASE VALVE

SCALE: NONE

DATE: 1-20-05

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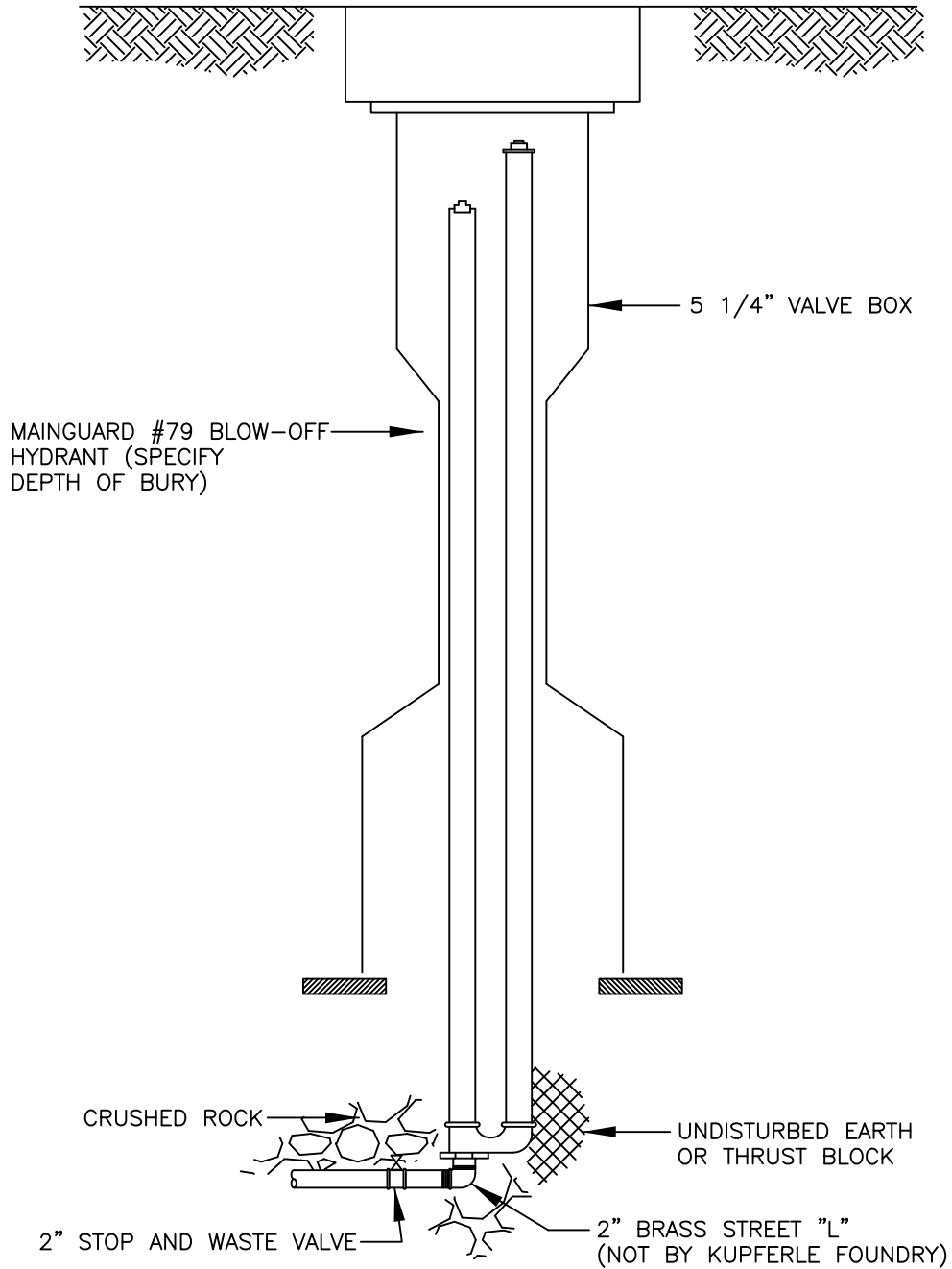


NOTES:

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

ALTOONA CITY AUTHORITY
STANDARD DETAIL

TYPICAL BLOWOFF ASSEMBLY
AT GRADE DISCHARGE



WRITTEN SPECIFICATIONS

Blow-off Hydrants shall be non-freezing, self draining type, with an overall length as required in field. Set underground in a 5 1/4" valve box. These hydrants will be furnished with a 2" FIP inlet, a non-turning operating rod, and shall open to the left. All of these working parts shall be of bronze-to-bronze design, and shall be serviceable from above grade with no digging. The outlet shall be a 2" FIP coupling with plug, as manufactured by Kupferle Foundry Co., St. Louis, MO, or approved equal. Specify overall length 6" shorter than normal depth of bury.

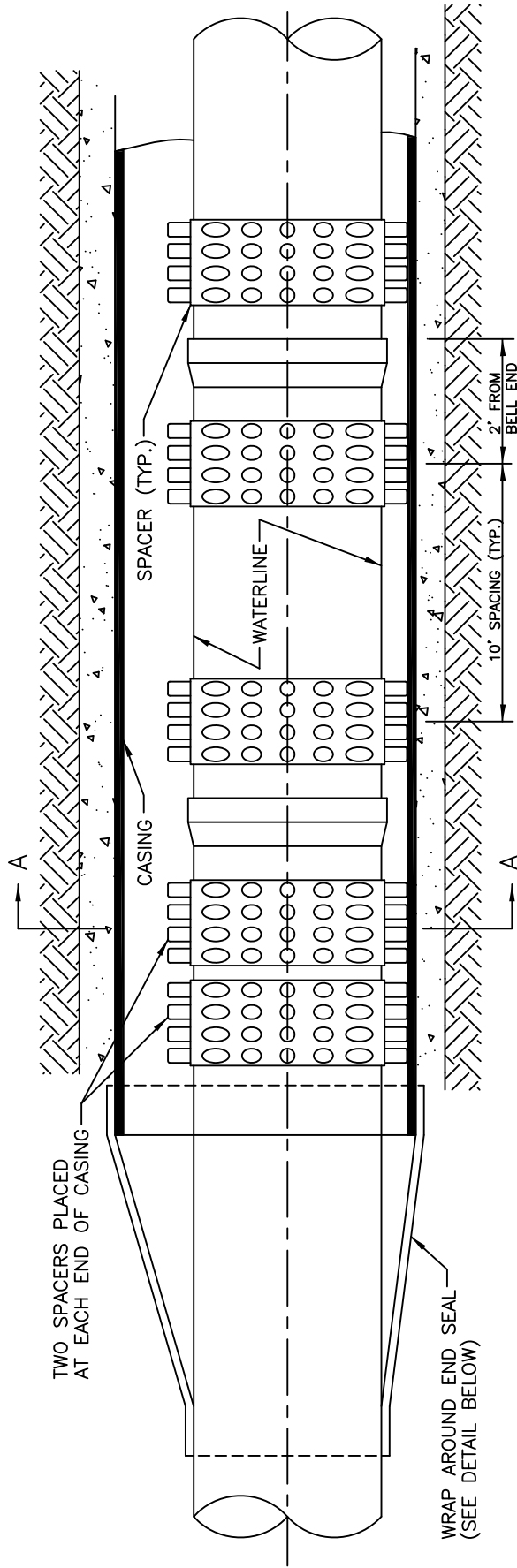
ALTOONA CITY AUTHORITY
STANDARD DETAIL

BLOWOFF HYDRANT

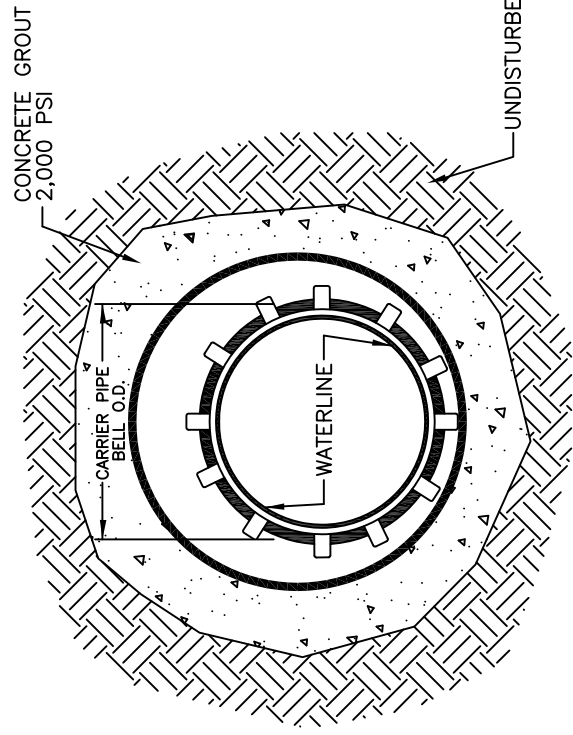
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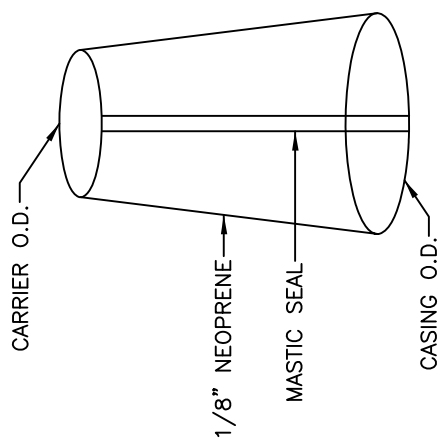
PAGE 5



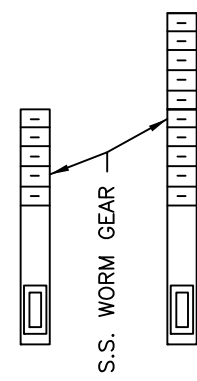
SPACERS SHALL BE RACI HIGH DENSITY POLYETHYLENE AS MANUFACTURED BY RECON PIPE CORP. OR APPROVED EQUAL. SPACER HEIGHT SHALL BE 2.36".

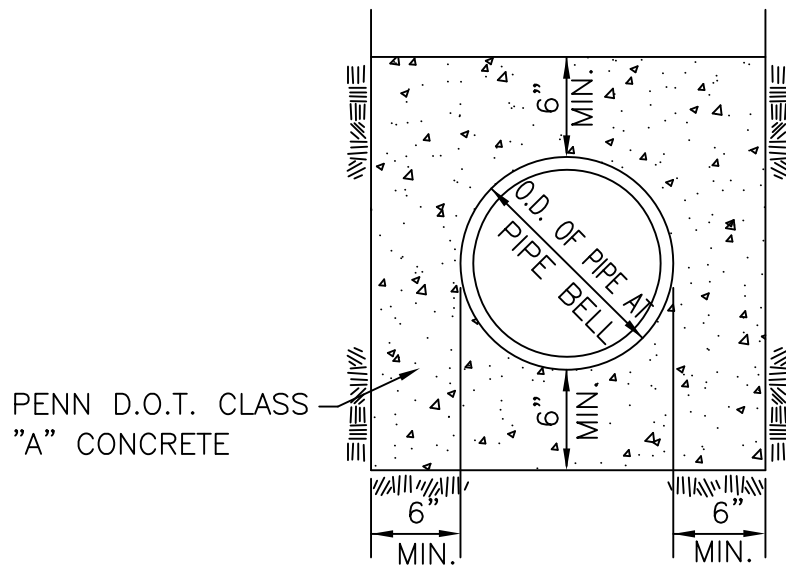


SECTION A-A

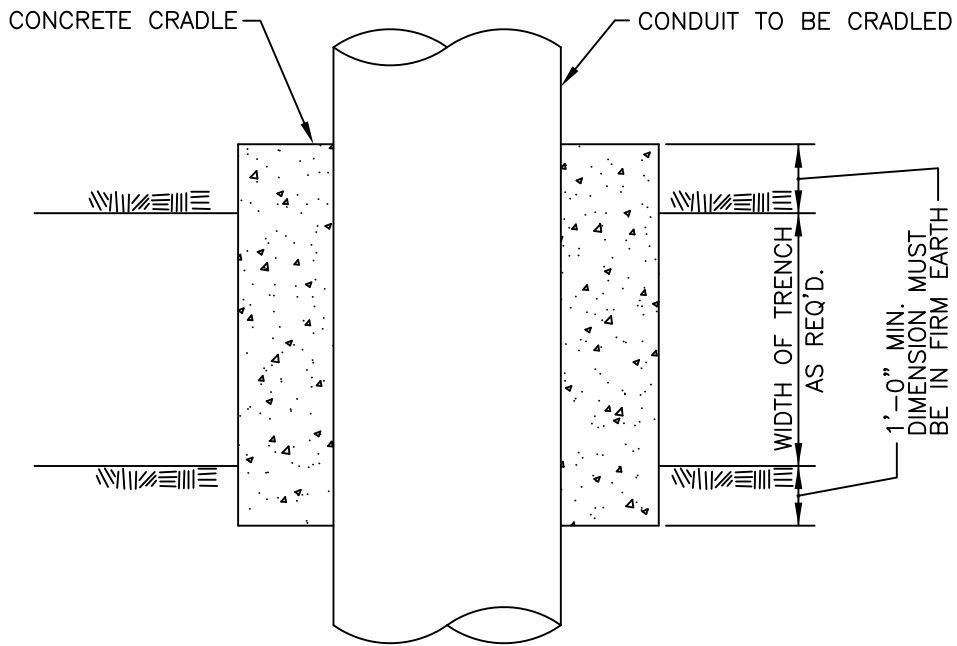


WRAP AROUND END SEAL

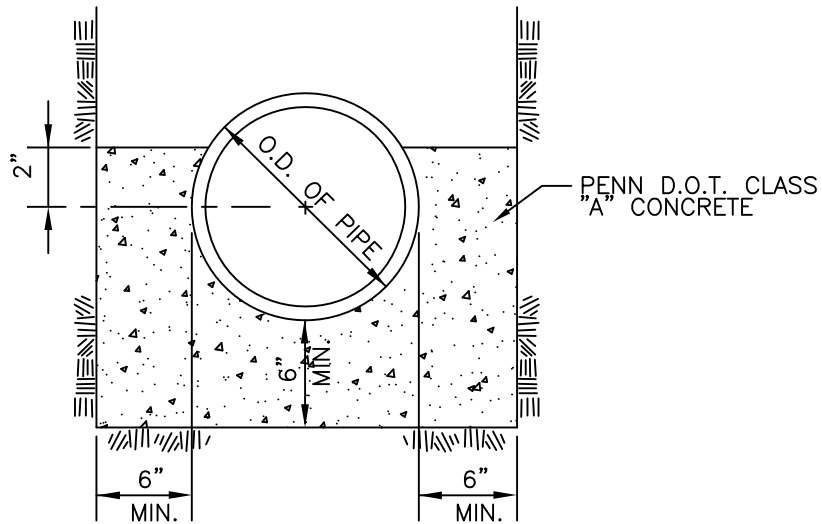




NOTE:
 CONFIRM 6" MINIMUM ENCASEMENT DIMENSION WITH ACA.
 ACA TO DETERMINE FINAL ENCASEMENT DIMENSION.

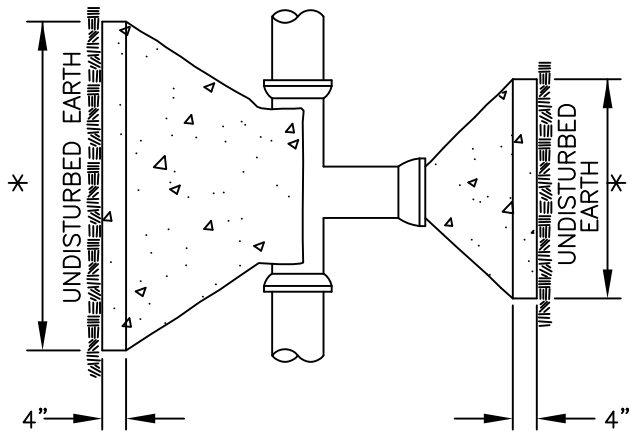


PLAN

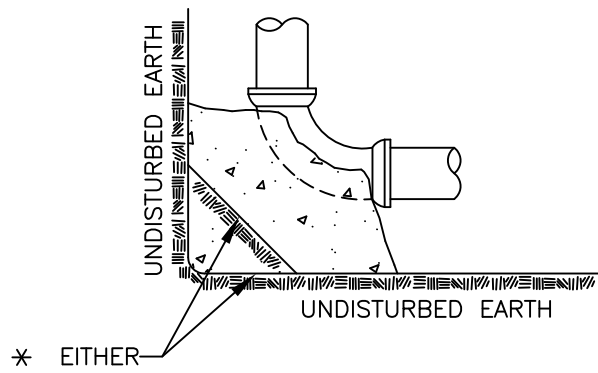


SECTION

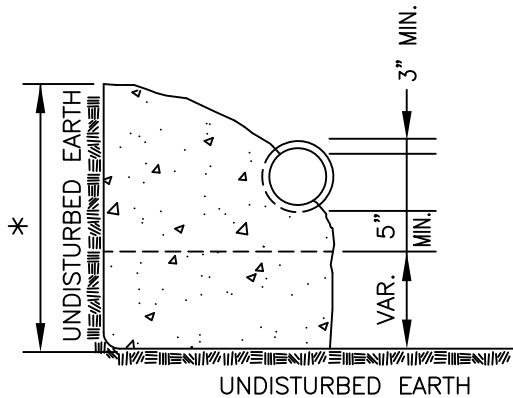
NOTE:
 CONCRETE CRADLE SHALL BE PROVIDED TO SUPPORT EXISTING STORM SEWER, SANITARY SEWER, AND WATERLINE PIPING AT ALL CROSSINGS WHERE THE TRANSMISSION MAIN IS BELOW AND WITHIN 18" OF THESE EXISTING UTILITIES.



PLAN-TEES, WYES AND PLUGS



PLAN-BENDS



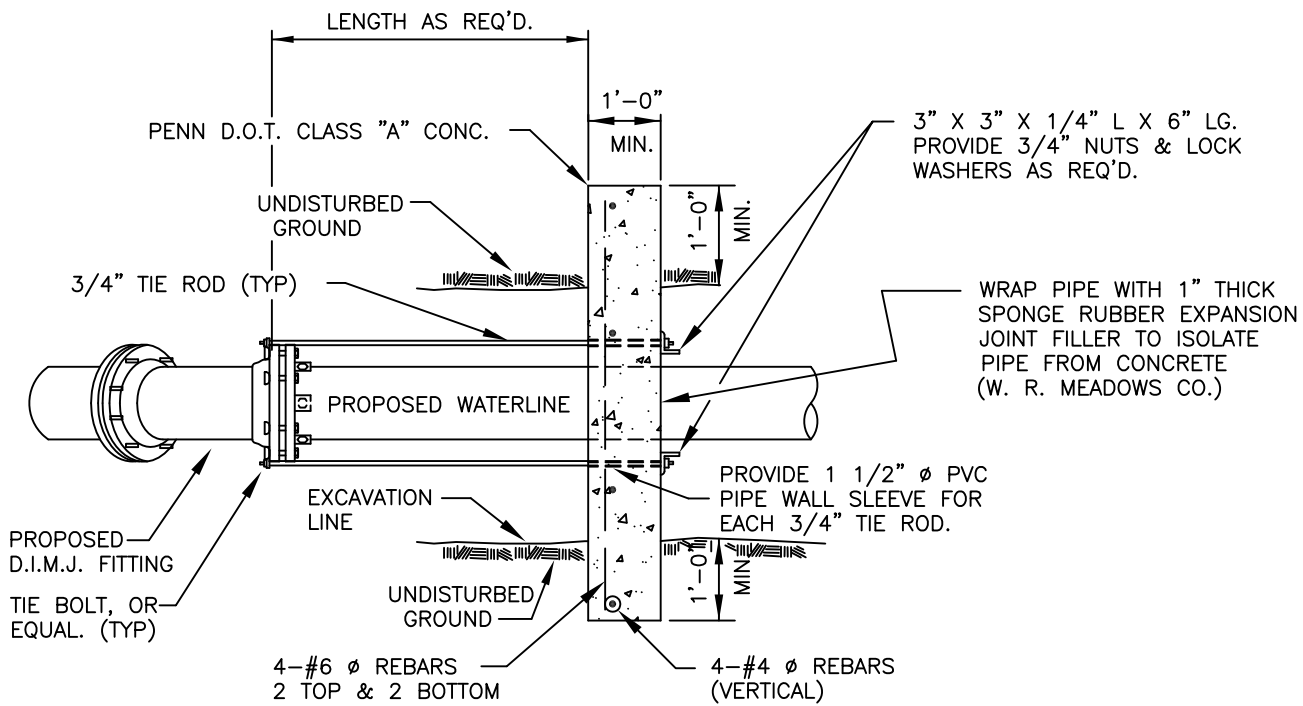
ELEVATION-TEES, WYES AND BENDS

NOTES:

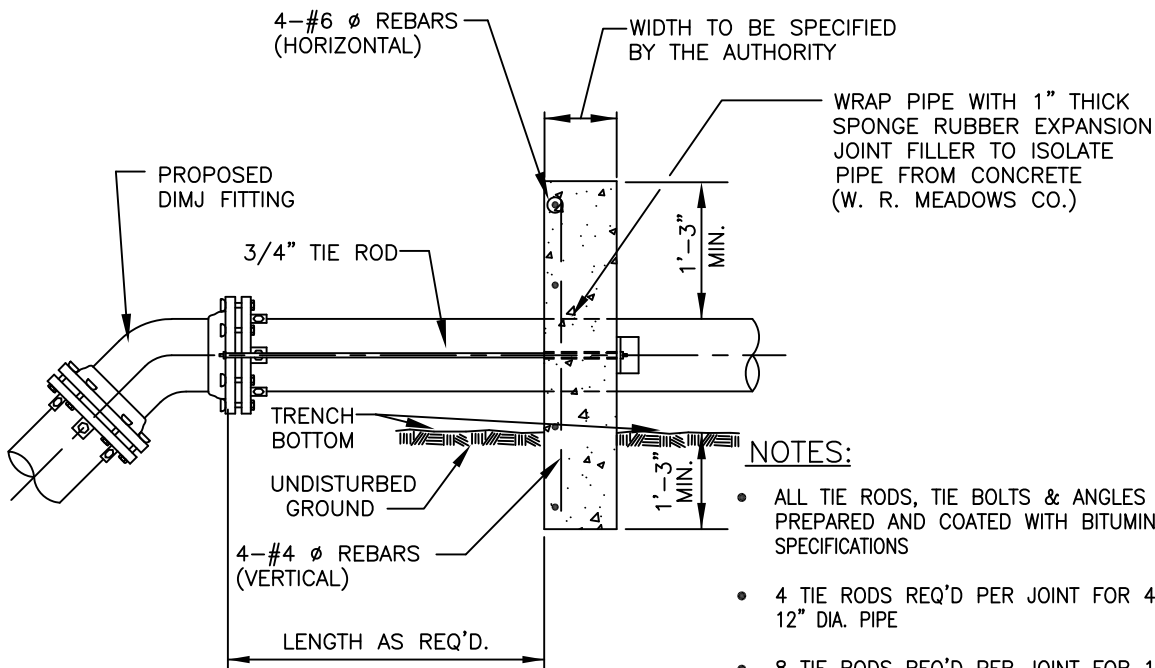
- ALL TEES, WYES, CROSSES, PLUGS AND BENDS SHALL BE BLOCKED AGAINST FIRM GROUND WITH CONCRETE.
- EARTH PRESSURE FIGURED AT 4,000 PSF. AREA OF BLOCK MUST BE INCREASED PROPORTIONATELY IF EARTH ENCOUNTERED WILL NOT WITHSTAND THIS PRESSURE IN THE OPINION OF THE AUTHORITY.
- TABLE IS BASED UPON 225 PSI OR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

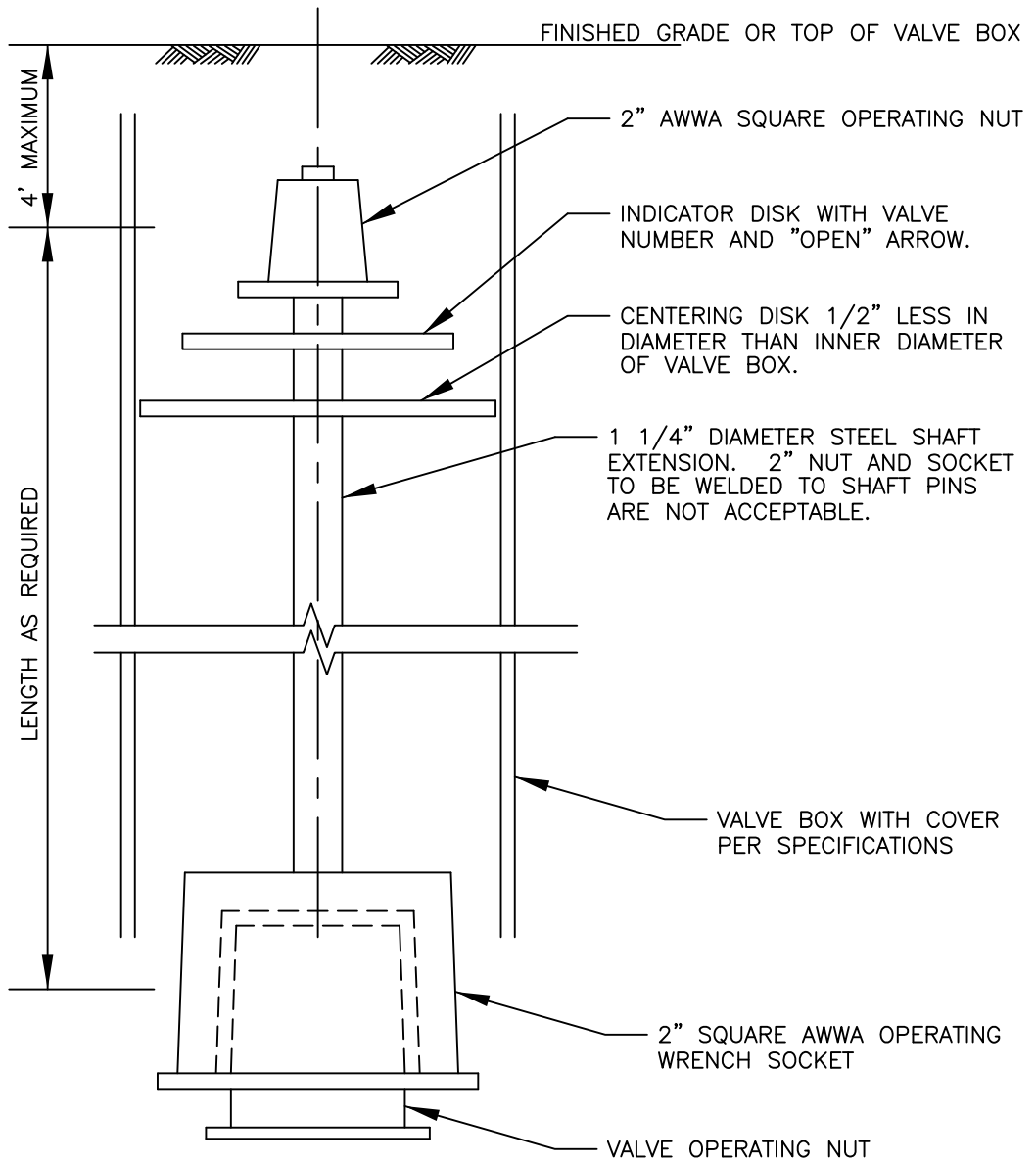
ALTOONA CITY AUTHORITY
STANDARD DETAIL

TYPICAL REINFORCED
CONCRETE DEADMAN

SCALE: NONE

DATE: 1-20-05

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ALTOONA CITY AUTHORITY
STANDARD DETAIL

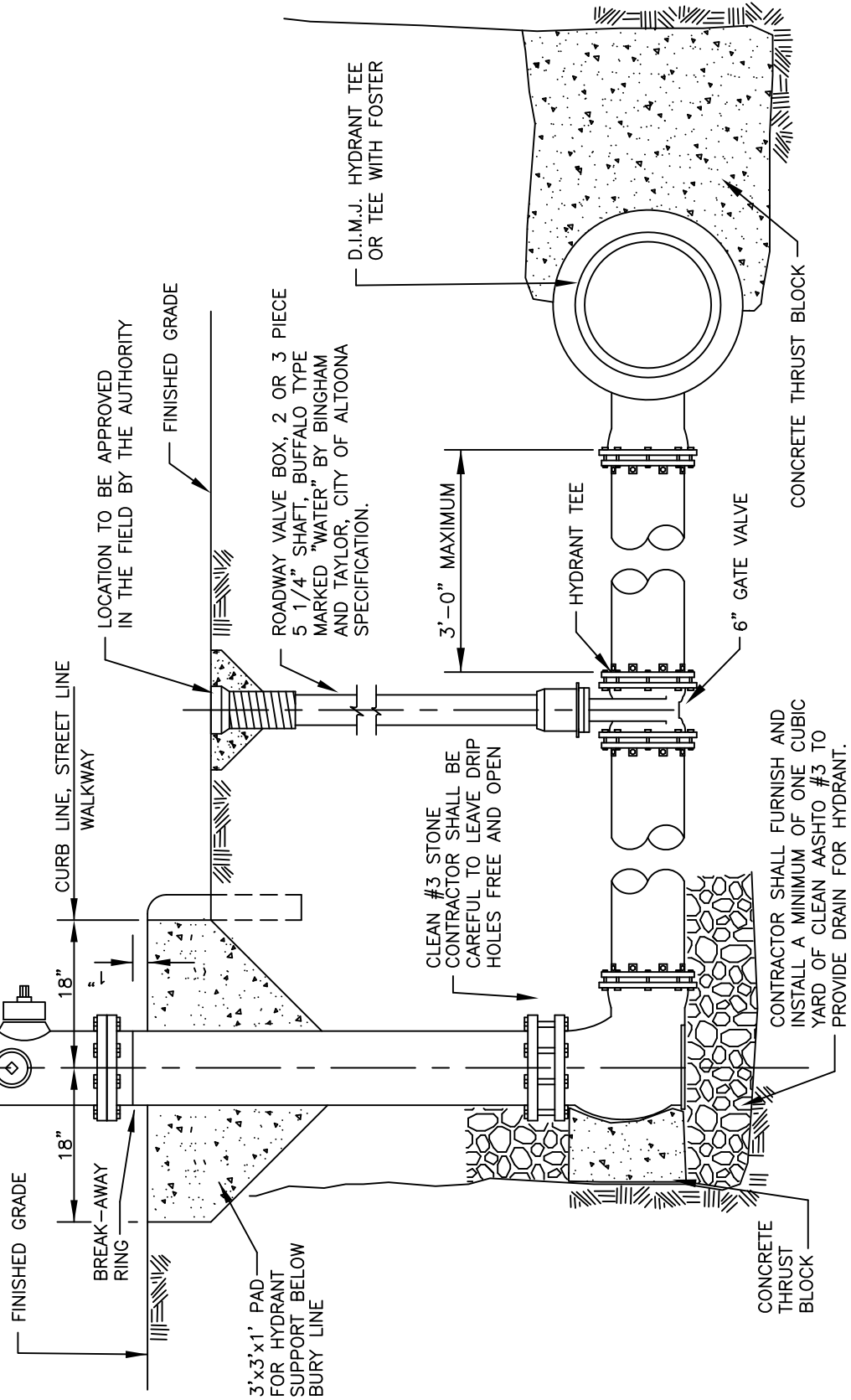
EXTENDED VALVE OPERATOR

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.



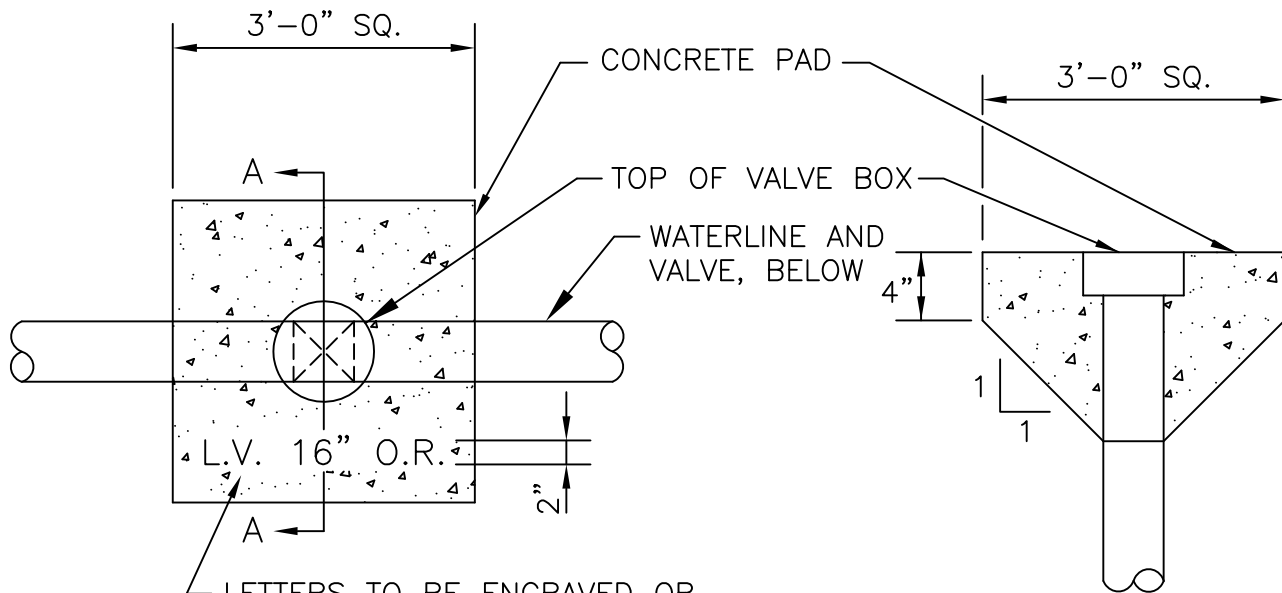
ALTOONA CITY AUTHORITY
STANDARD DETAIL

TYPICAL HYDRANT
INSTALLATION

SCALE: NONE

DATE: 1-20-05

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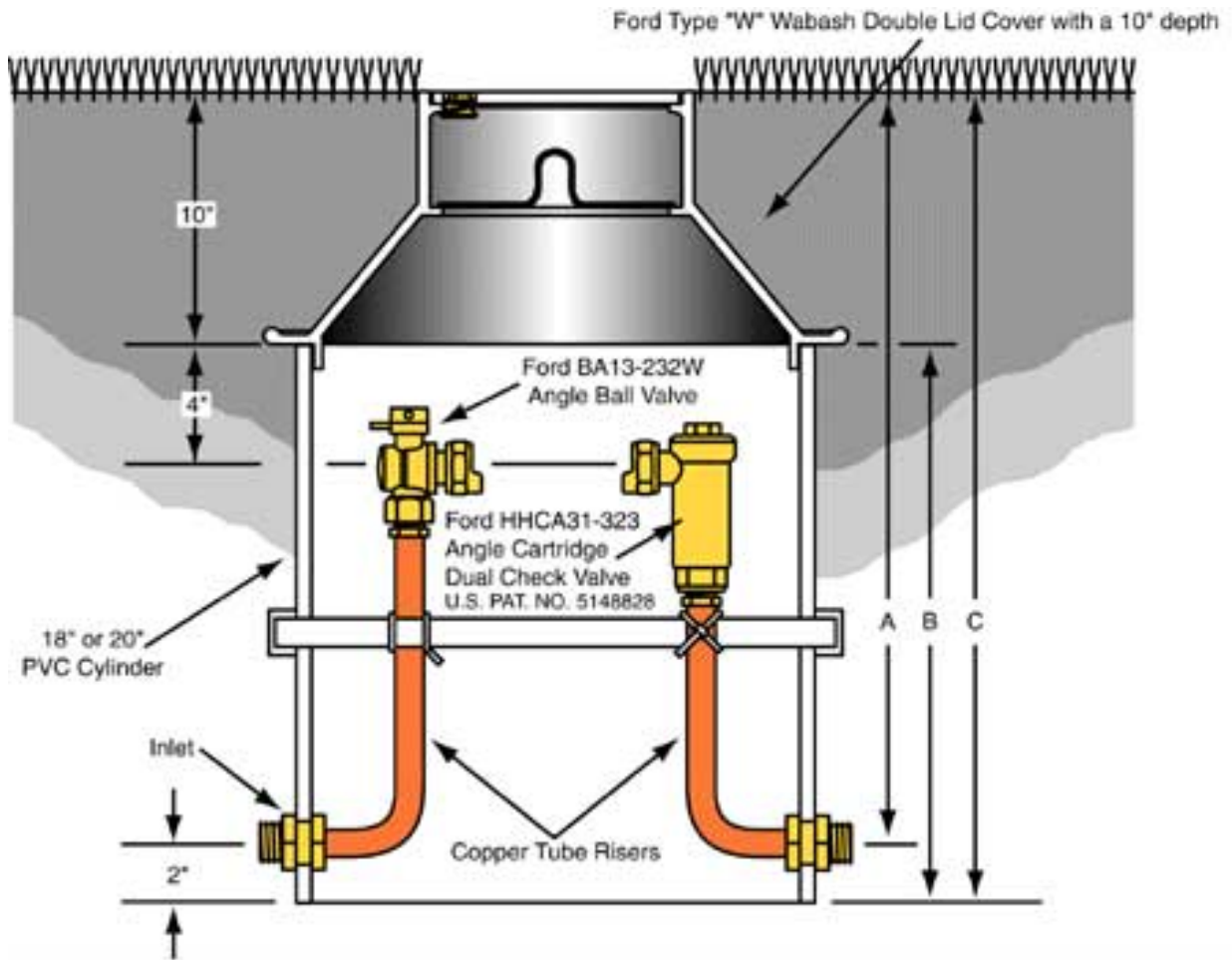
LETTERS TO BE ENGRAVED OR STAMPED ON PAD (PAINTING OF LETTERS IS PROHIBITED), SEE ENGINEER FOR APPLICABLE ITEM DESCRIPTION.

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.

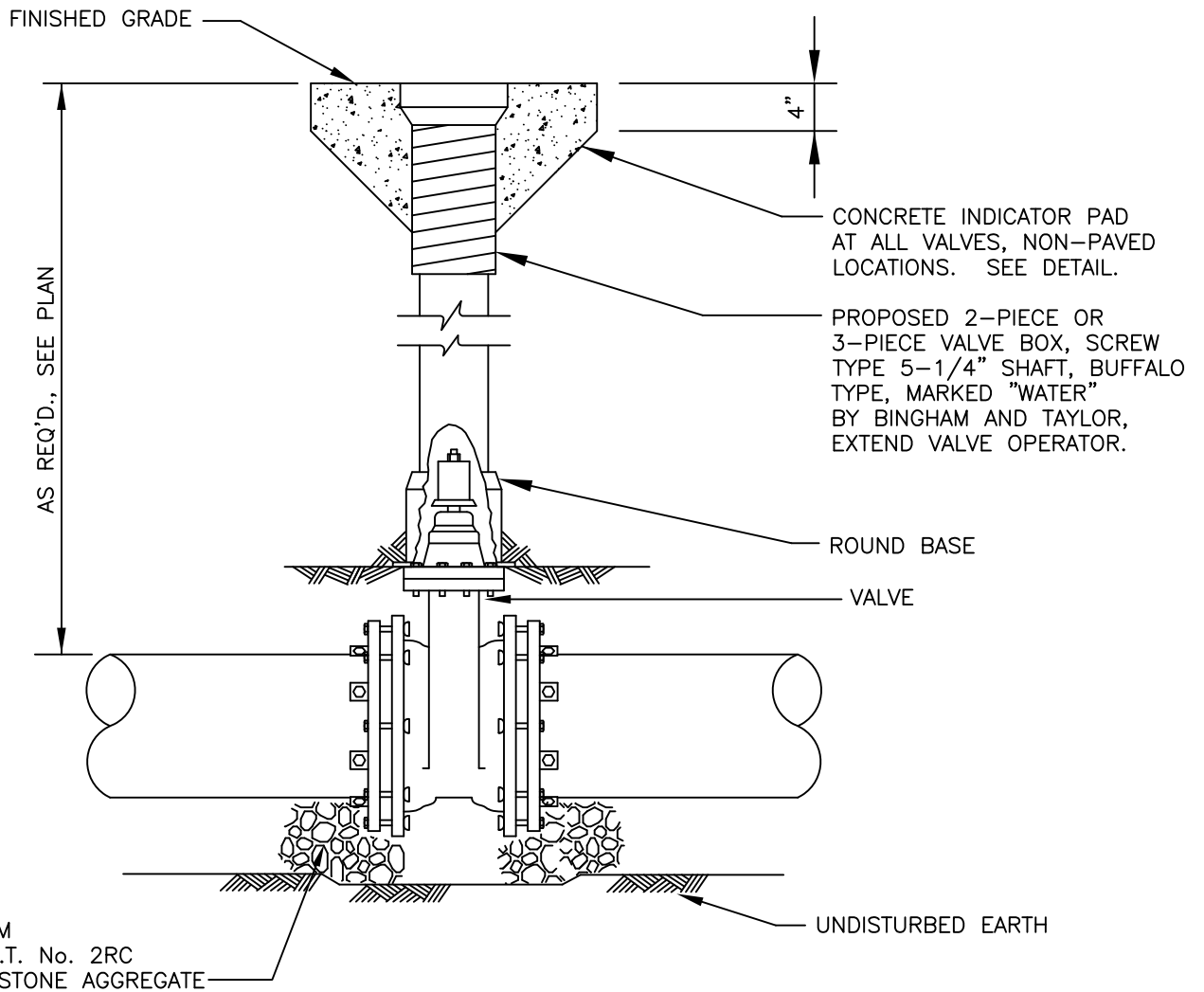
ALTOONA CITY AUTHORITY
STANDARD DETAIL

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

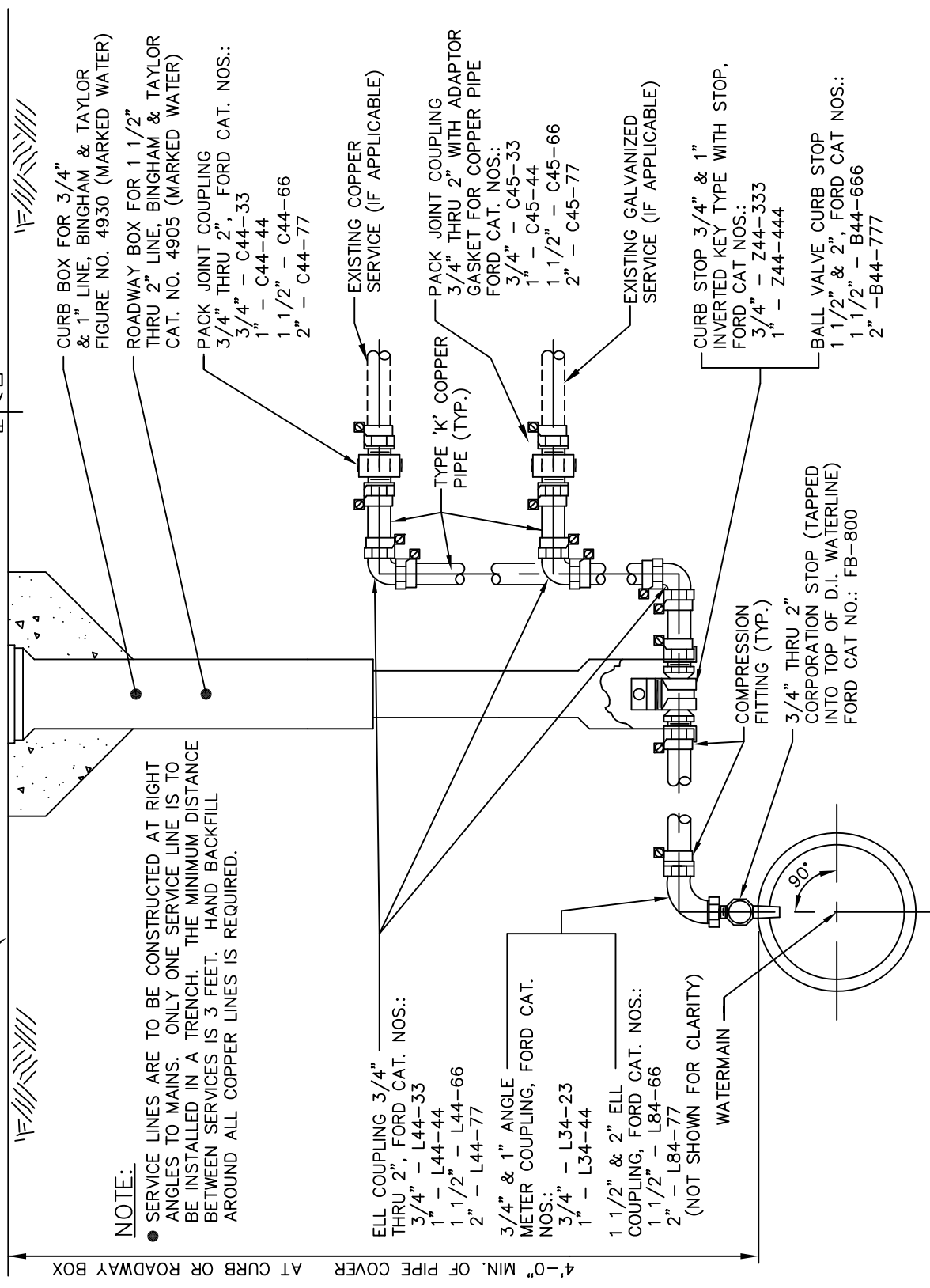
DATE: 1-20-05

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PRIVATE PROPERTY
PUBLIC R.O.W.

ALL TAPS WILL BE MADE BY ALTOONA CITY AUTHORITY

FINISH GRADE



NOTE:

● SERVICE LINES ARE TO BE CONSTRUCTED AT RIGHT ANGLES TO MAINS. ONLY ONE SERVICE LINE IS TO BE INSTALLED IN A TRENCH. THE MINIMUM DISTANCE BETWEEN SERVICES IS 3 FEET. HAND BACKFILL AROUND ALL COPPER LINES IS REQUIRED.

ELL COUPLING 3/4" THRU 2", FORD CAT. NOS.:
3/4" - L44-33
1" - L44-44
1 1/2" - L44-66
2" - L44-77

3/4" & 1" ANGLE METER COUPLING, FORD CAT. NOS.:
3/4" - L34-23
1" - L34-44

1 1/2" & 2" ELL COUPLING, FORD CAT. NOS.:
1 1/2" - L84-66
2" - L84-77
(NOT SHOWN FOR CLARITY)

WATERMAIN

COMPRESSION FITTING (TYP.)
3/4" THRU 2" CORPORATION STOP (TAPPED INTO TOP OF D.I. WATERLINE)
FORD CAT NO.: FB-800

EXISTING COPPER SERVICE (IF APPLICABLE)

PACK JOINT COUPLING 3/4" THRU 2" WITH ADAPTOR GASKET FOR COPPER PIPE
FORD CAT. NOS.:
3/4" - C45-33
1" - C45-44
1 1/2" - C45-66
2" - C45-77

EXISTING GALVANIZED SERVICE (IF APPLICABLE)

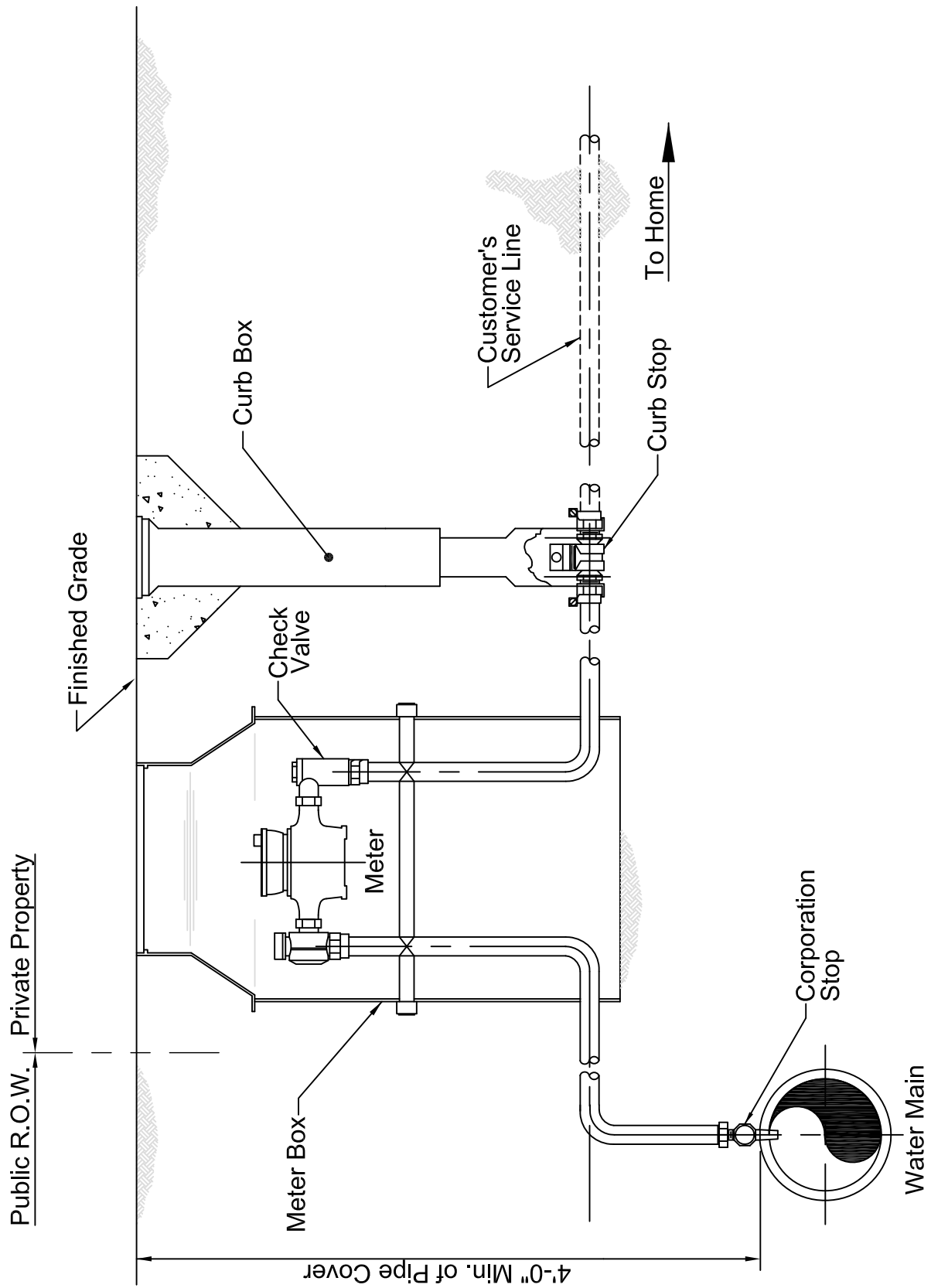
CURB STOP 3/4" & 1" INVERTED KEY TYPE WITH STOP,
FORD CAT NOS.:
3/4" - Z44-333
1" - Z44-444

BALL VALVE CURB STOP
1 1/2" & 2", FORD CAT NOS.:
1 1/2" - B44-666
2" - B44-777

4'-0" MIN. OF PIPE COVER AT CURB OR ROADWAY BOX

R.O.W. LINE OR AS SHOWN ON DRAWING

CURB BOX FOR 3/4" & 1" LINE, BINGHAM & TAYLOR FIGURE NO. 4930 (MARKED WATER)
ROADWAY BOX FOR 1 1/2" THRU 2" LINE, BINGHAM & TAYLOR CAT. NO. 4905 (MARKED WATER)
PACK JOINT COUPLING 3/4" THRU 2", FORD CAT. NOS.:
3/4" - C44-33
1" - C44-44
1 1/2" - C44-66
2" - C44-77



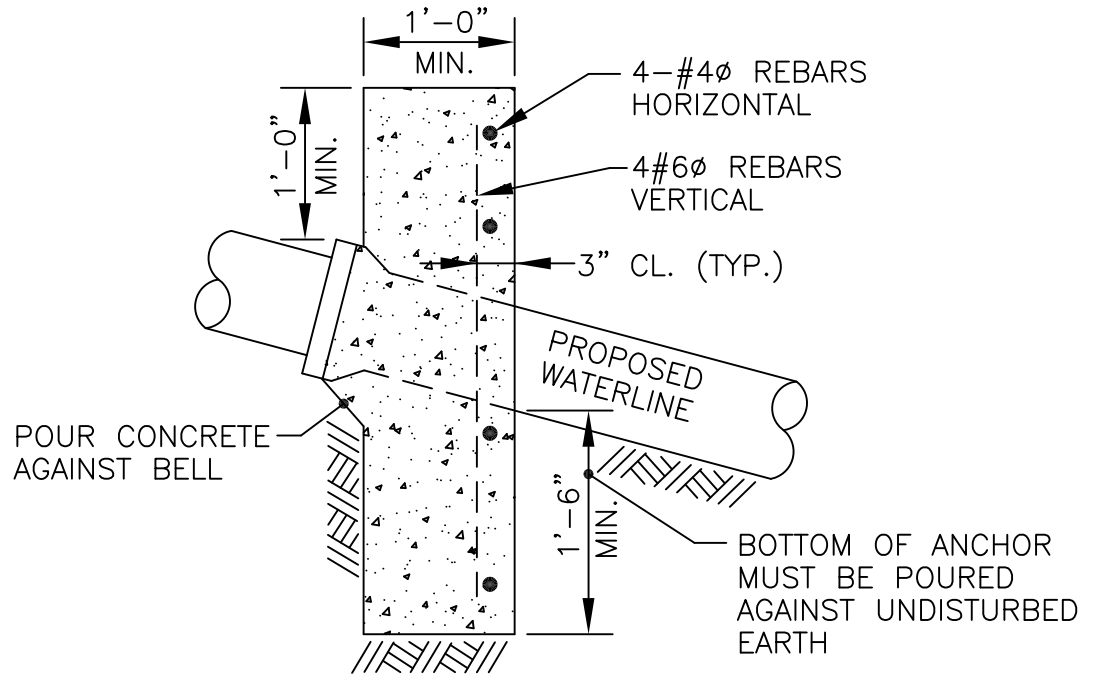
ALTOONA CITY AUTHORITY
STANDARD DETAIL

TYPICAL SERVICE CONNECTION
WITH METER PIT

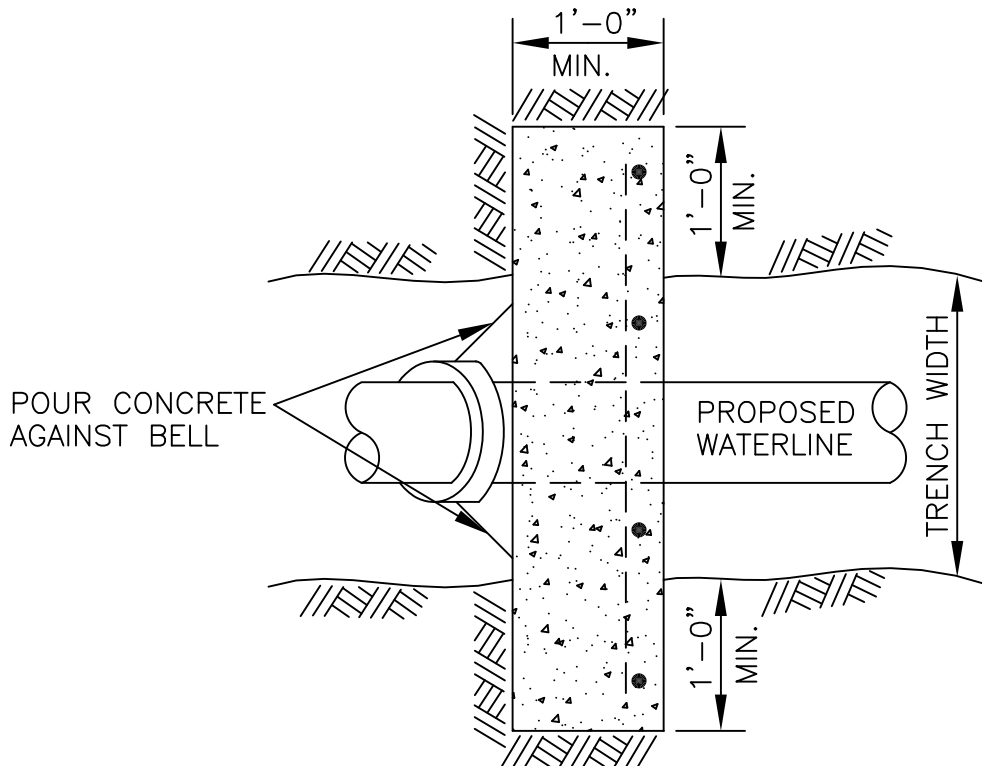
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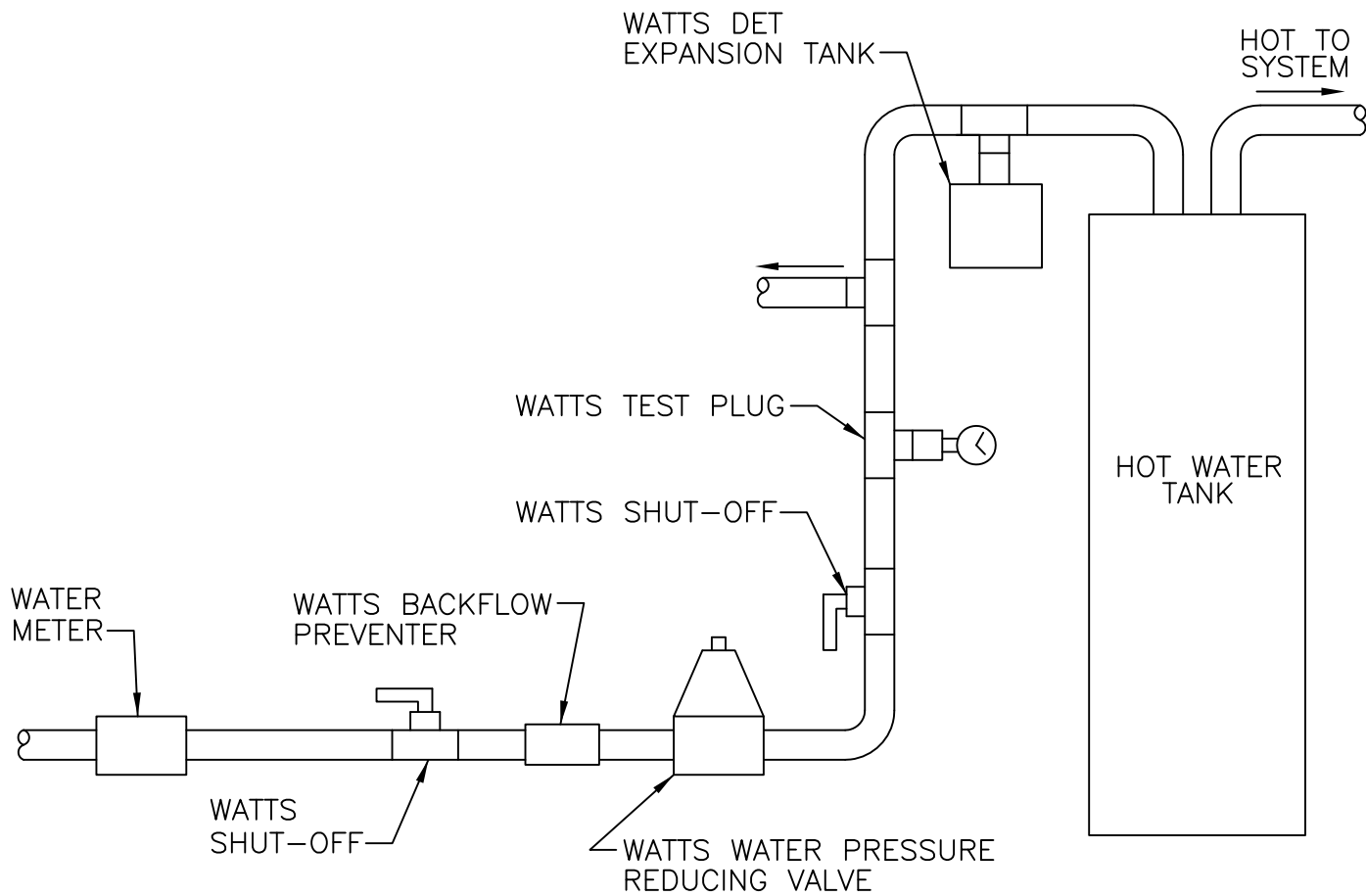
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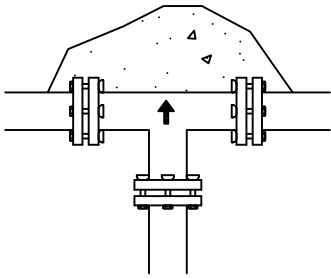


ELEVATION

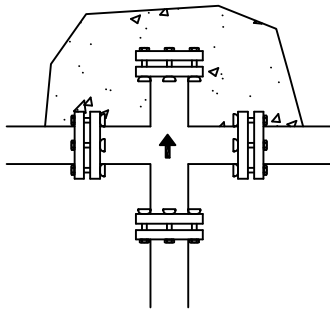


PLAN

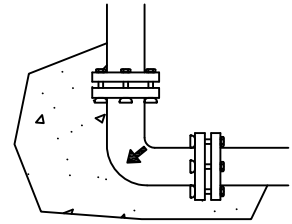




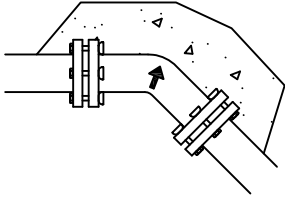
1. THRU LINE CONNECTION, TEE



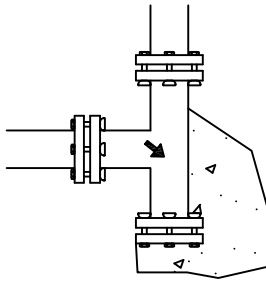
2. THRU LINE CONNECTION, CROSS USED AS TEE



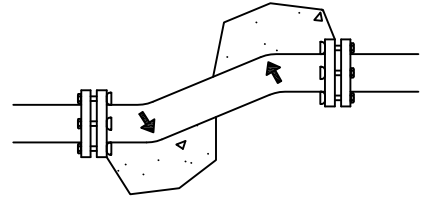
3. DIRECTION CHANGE, ELBOW



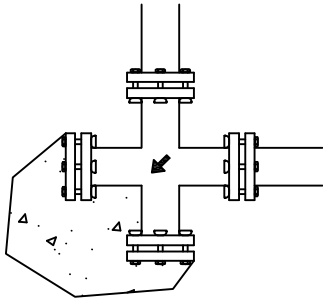
4. DIRECTION CHANGE VERTICAL, BEND



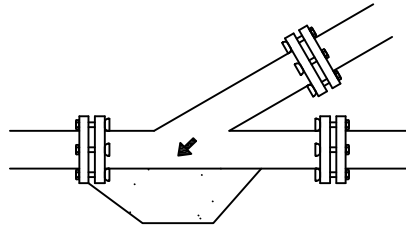
5. DIRECTION CHANGE, TEE USED AS ELBOW



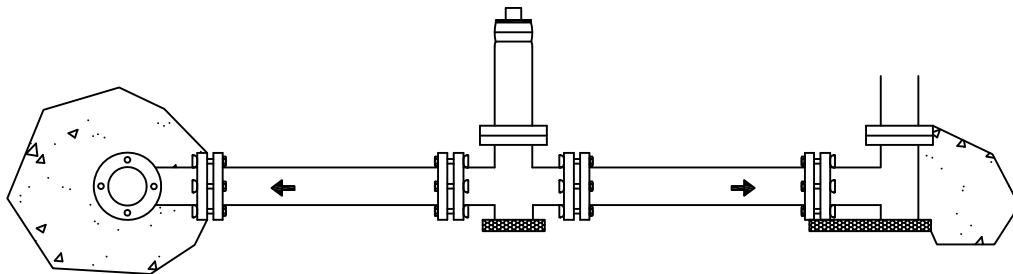
6. DIRECTION CHANGE



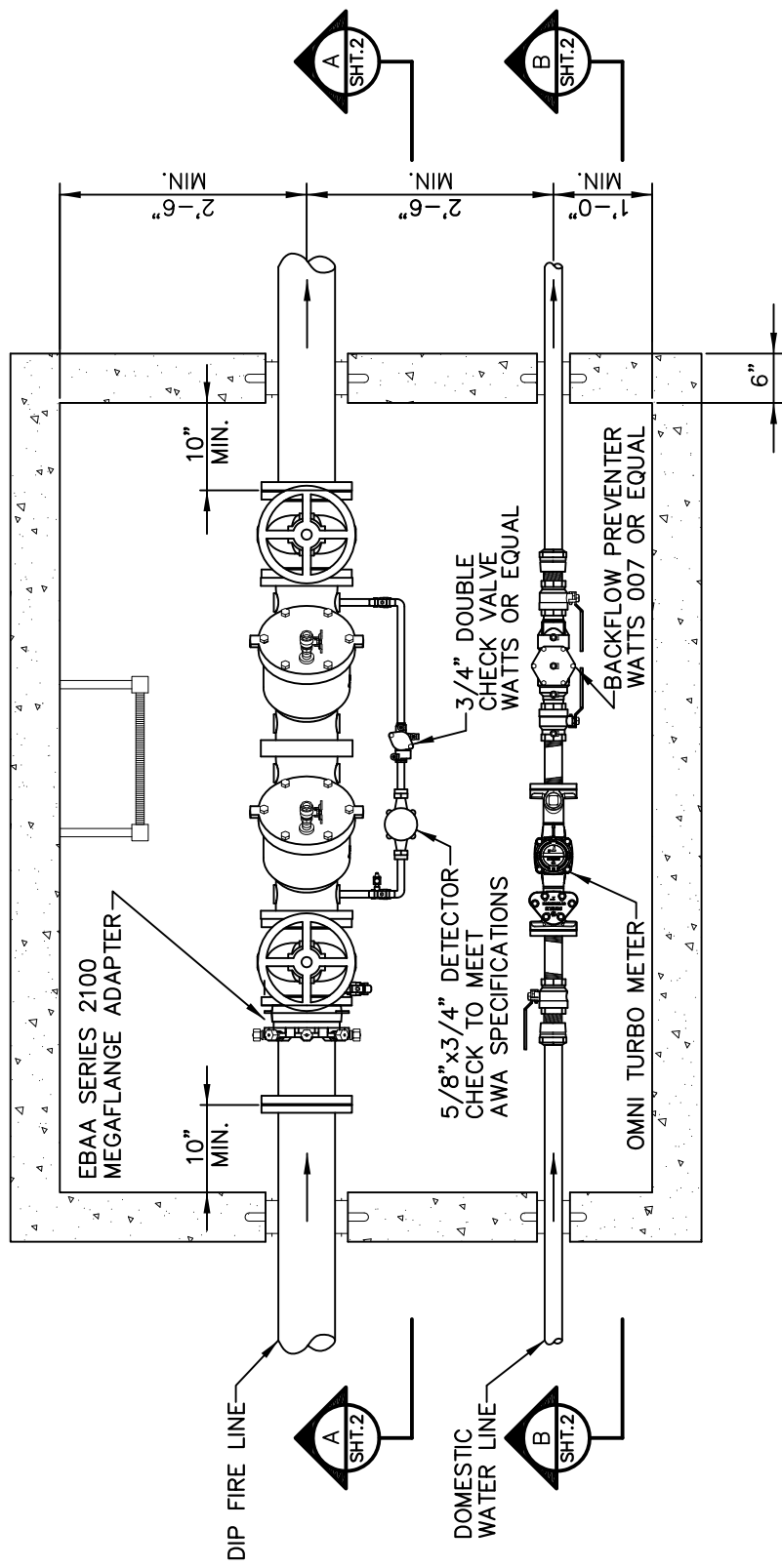
7. DIRECTION CHANGE, CROSS USED AS ELBOW



8. THRU LINE CONNECTION, WYE



9. HYDRANT RUNOUT

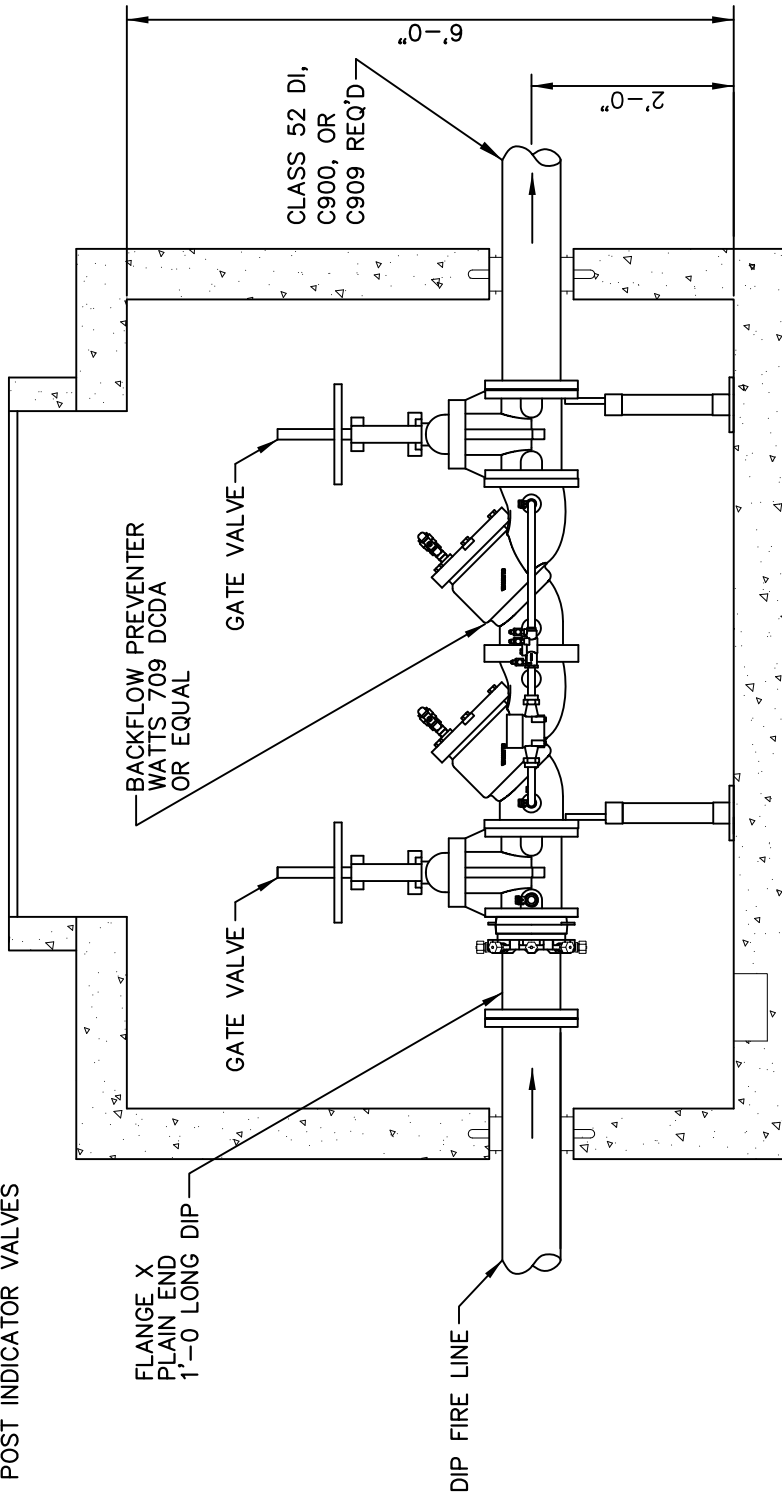


PLAN VIEW

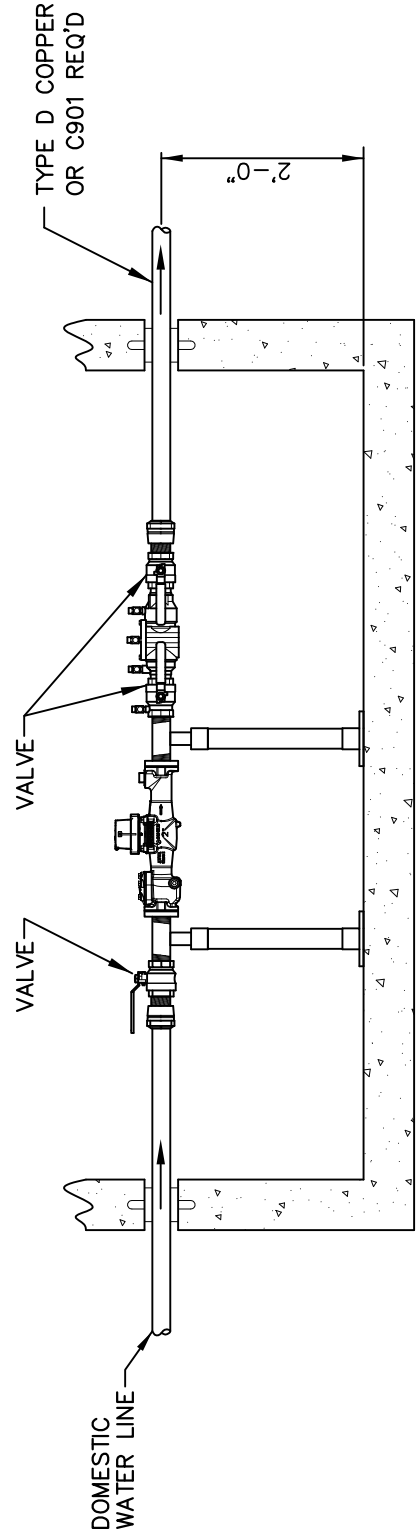
ALTOONA WATER AUTHORITY
STANDARD DETAIL

TYPICAL METER VAULT FOR
SERVICES REQUIRING SEPARATE
FIRE AND DOMESTIC CONNECTIONS

NOTE: CONSULT LOCAL MUNICIPALITY FOR ORDINANCES REQUIRING POST INDICATOR VALVES



SECTION A-A-SHT.1



SECTION B-B-SHT.1

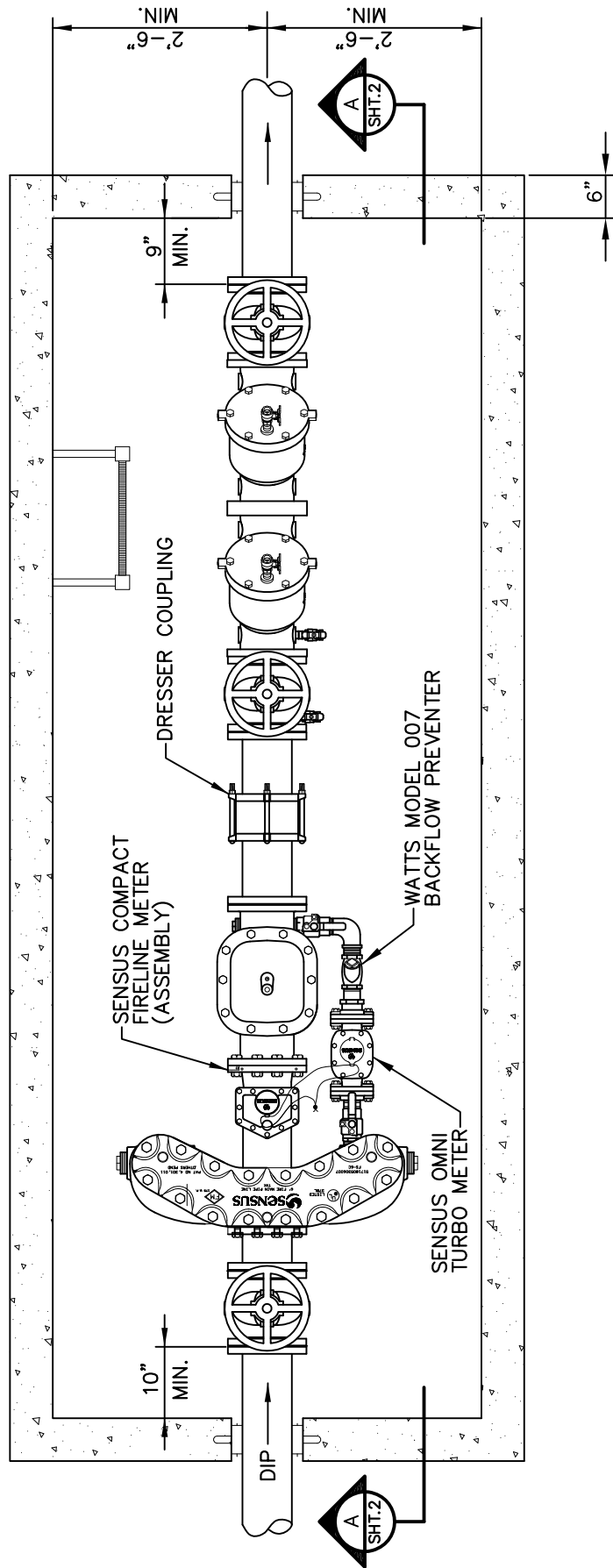
ALTOONA WATER AUTHORITY
STANDARD DETAIL

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

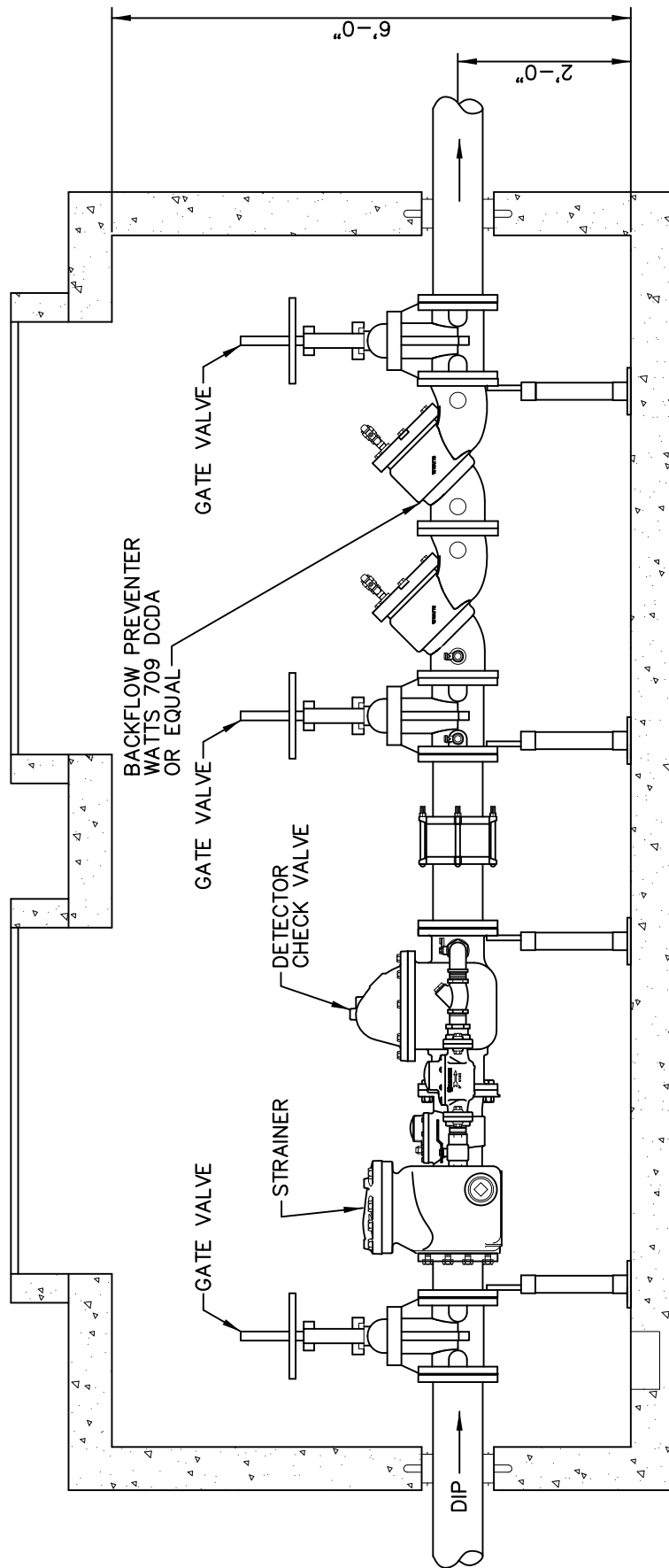
OPTIONAL METER VAULT FOR FIRE &
DOMESTIC SERVICES REQUIRING GREATER
THAN A 2" DOMESTIC WATER LINE

SCALE: NONE

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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