PROJECT REFERENCE NO.	SHEET NO.
I–5711	UC–3
DESIGNED BY: T. KING	
DRAWN BY: W. FOX	
CHECKED BY: T. KING	
APPROVED BY: T. KING	
REVISED:	

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035017 TROY S. KING 12/17/2019

alley, williams, carmen & king, inc.
ENGINEERS, ARCHITECTS & SURVEYORS
740 chapel hill road p.o. box 1179
burlington, n.c. 27215 336/226-5534
Firm's Engineering License No. F-0203

ROADWAY DESIGN DATA AND DRAWINGS PROVIDED BY NCDOT

RELATION OF WATER MAINS TO SEWERS

(a) Lateral Separation of Sewer and Water Mains. Water Mains shall be laid at least 10 feet laterally from existing or proposed sewer, unless local conditions or barriers prevent a 10 foot lateral separation in which case:

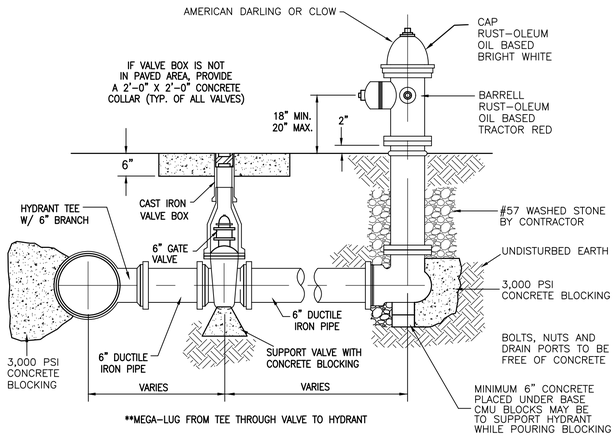
1. The water main is laid in a separate trench, with the elevation of the bottom of the water main at least 18 inches above the top of the sewer; or
2. The water main is laid in the same trench as the sewer with the water main located at one side of a bench of undisturbed earth, and with the elevation of the bottom of the water main at least 18 inches above the top of the sewer.

(b) Crossing a Water Main over a Sewer. Whenever it is necessary for a water main to cross over a sewer, the water main shall be laid at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer, unless local conditions or barriers prevent an 18inch vertical separation – – in which case both the water main and sewer shall be constructed of ferrous materials and with joints that are equivalent to water main standards for a distance of 10 feet on each side of the point of crossing.

(c) Crossing a Water Main Under a Sewer. Whenever it is necessary for a water main to cross under a sewer, both the water main and the sewer shall be constructed of ferrous materials and with joints equivalent to water main standards for a distance of 10 feet on each side of the point of crossing. A section of water main pipe shall be centered at the point of crossing.

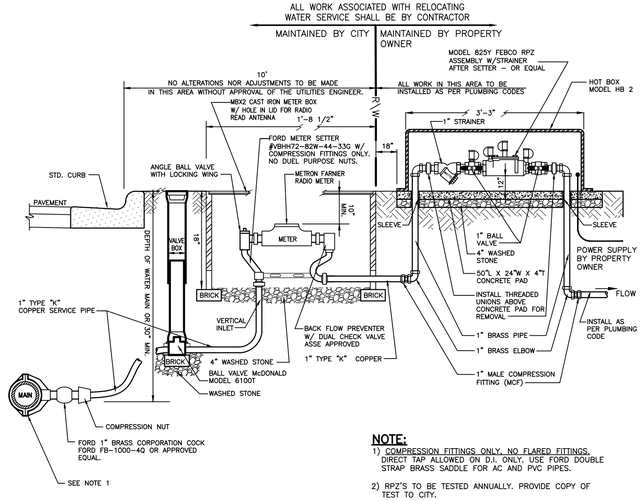
History Note: Statutory Authority G.S. 130–157 to 1611; Eff. January 1, 1977

RELATION OF WATER MAINS TO SEWERS



**MEGA–LUG FROM TEE THROUGH VALVE TO HYDRANT

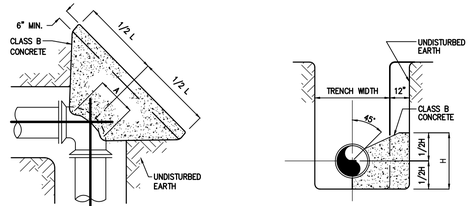
FIRE HYDRANT INSTALLATION



NOTE:
1) COMPRESSION FITTINGS ONLY, NO FLARED FITTINGS. DIRECT TAP ALLOWED ON D.I. ONLY. USE FORD DOUBLE STRAP BRASS SADDLE FOR AC AND PVC PIPES.

2) RPZ'S TO BE TESTED ANNUALLY. PROVIDE COPY OF TEST TO CITY.

1" WATER CONNECTION WITH RPZ BACKFLOW ASSEMBLY



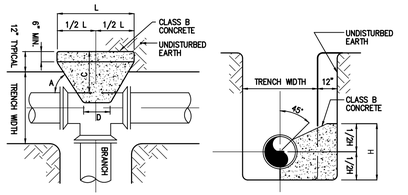
PLAN – BENDS

SECTION

PIPE SIZE	BUTTRESS DIMENSIONS 22 1/2° BENDS L	H	45° BENDS L	H	90° BENDS L	H
6"	1'–0"	1'–0"	1'–0"	1'–0"	1'–4"	1'–2"
8"	1'–0"	1'–0"	1'–4"	1'–2"	1'–10"	1'–6"
12"	1'–4"	1'–4"	1'–10"	1'–10"	2'–8"	2'–3"

NOTES:
1. DIMENSION "A" SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERRING WITH THE MECHANICAL JOINT BOLTS
2. THE SHAPE OF THE BACK OF THE BUTTRESS MAY VARY PROVIDED THE CONCRETE IS AGAINST FIRM, UNDISTURDED EARTH.
3. BUTTRESS DIMENSIONS ARE BASED UPON A SOIL RESISTANCE OF TWO TONS PER SQ. FT. AND A WATER PRESSURE OF 150 P.S.I.

THRUST BLOCK - BENDS



PLAN – TEE

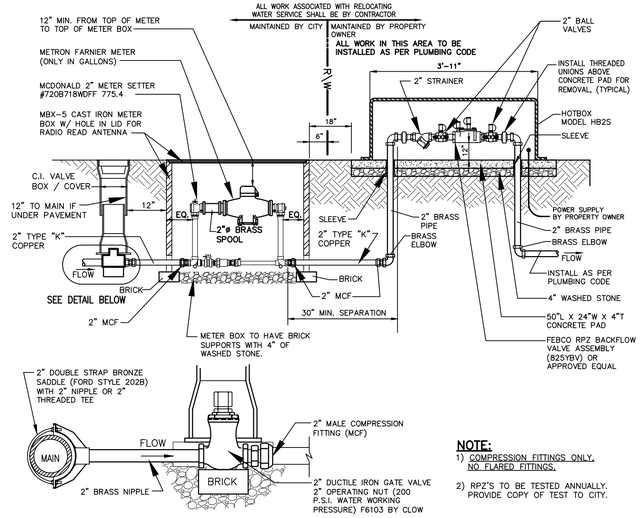
SECTION

B. D.	BUTTRESS DIMENSIONS L	H	C	D
6"	1'–3"	1'–0"	SEE NOTE NO. 1	SEE NOTE NO. 2
8"	1'–6"	1'–4"		
12"	2'–3"	2'–0"		

B. D. = BRANCH DIAMETER

NOTES:
1. DIMENSION "C" SHOULD BE LARGE ENOUGH TO MAKE ANGLE "A" EQUAL TO OR GREATER THAN 45°.
2. DIMENSION "D" SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERRING WITH EHT MECHANICAL JOINTS.
3. BUTTRESS DIMENSIONS ARE BASED UPON A SOIL RESISTANCE OF TWO TONS PER SQ. FT. AND A WATER PRESSURE OF 150 P.S.I.

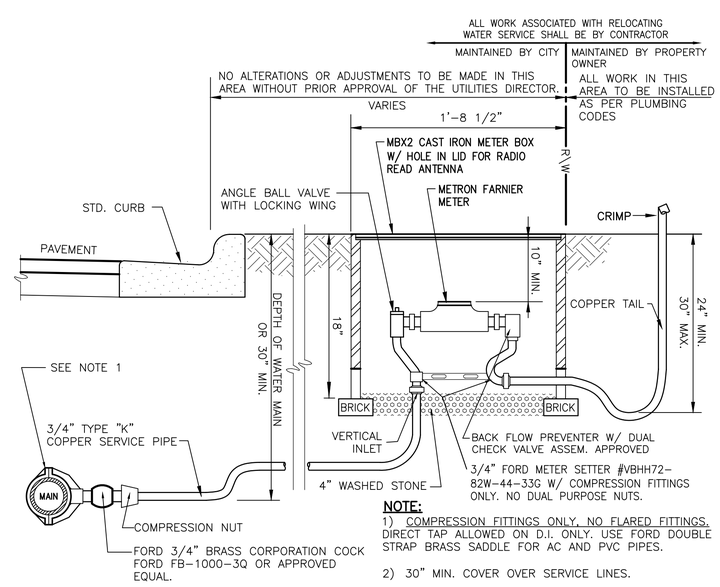
THRUST BLOCK - TEES



NOTE:
1) COMPRESSION FITTINGS ONLY, NO FLARED FITTINGS.

2) RPZ'S TO BE TESTED ANNUALLY. PROVIDE COPY OF TEST TO CITY.

2" WATER CONNECTION WITH RPZ BACKFLOW ASSEMBLY



NOTE:
1) COMPRESSION FITTINGS ONLY, NO FLARED FITTINGS. DIRECT TAP ALLOWED ON D.I. ONLY. USE FORD DOUBLE STRAP BRASS SADDLE FOR AC AND PVC PIPES.

2) 30" MIN. COVER OVER SERVICE LINES.

3/4" DOMESTIC WATER SERVICE CONNECTION