


1. ALL WATER MAINS TO BE ONE OR A COMBINATION OF THE FOLLOWING MATERIALS HAVING DUCTILE IRON OUTSIDE DIAMETERS:
 - A. DUCTILE IRON MUST:
 1. MEET OR EXCEED AWWA SPECIFICATIONS C150 & C 151;
 2. MECHANICAL JOINT BELL & SPIGOT JOINTS WITH A SINGLE RUBBER GASKET, MEETING AWWA SPECIFICATIONS C111;
 3. PRESSURE CLASS SHALL BE RECOMMENDED BY THE ENGINEER OF RECORD
 - B. POLYVINYL CHLORIDE (PVC)
 1. 4 INCH AND LARGER AWWA C900 CL150 W/RING-TITE SEAL, SDR-18;
 2. 3 INCH OR LESS CL200 SDR-21 (MINIMUM) W/RING-TITE SEAL.
2. TAPPING SLEEVE & VALVE:
 - A. TAPPING SLEEVE TO MEET AWWA SPECIFICATIONS WITH A MINIMUM WORKING PRESSURE OF 150 P.S.I.
 - B. TAPPING VALVE SHALL MEET AWWA SPECIFICATIONS WITH A MINIMUM WORKING PRESSURE OF 175 P.S.I.
 - C. ALL SIZE ON SIZE TAPS SHALL BE MADE USING A DUCTILE IRON FULL BODY TAPPING SLEEVE. ALL REDUCED SIZE TAPS MAY BE MADE USING AND EPOXY COATED FABRICATED STEEL TAPPING SLEEVE WITH STAINLESS STEEL BOLTS, OR A STAINLESS STEEL FULL CIRCLE TAPPING SLEEVE WITH DUCTILE IRON FLANGE.
3. BENDS & FITTINGS:
 - A. ALL ENDS AND FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT (D.I.M.J.) MEETING THE SPECIFICATIONS OF ANSI/AWWA C110-77 OR AWWA C153.
 - B. ALL FITTINGS TO BE "MJ", NOT FLANGED (WITH EXCEPTION OF FULL BODIED TAPPING SLEEVE.)
4. TIED JOINT RESTRAINT SYSTEMS (ALL-THREAD ROD CONNECTIONS):
 - A. DIRECT CONNECTION OF THE ALL-THREAD ROD TO THE FLANGE OF THE FITTING WILL NOT BE PERMITTED. THE APPROPRIATE "TIEBOLT", NUT AND WASHER IS THE ONLY ACCEPTABLE MEANS OF MAKING THIS CONNECTION (TIEBOLT) SHOULD BE EQUAL TO OR EXCEED STAR "SUPER TIE-BOLT".
 - B. ALL-THREAD ROD WILL BE OF THE FOLLOWING DIMENSION:
 1. 3 INCH OR SMALLER WATER LINE--5/8" DIAMETER ROD.
 2. 4 INCH OR LARGER WATERLINE--3/4" DIAMETER ROD.
 - C. ALL THREAD RODS, NUTS, AND WASHERS SHALL BE STAINLESS STEEL. SPECIFICATIONS FOR TIEBOLT SHALL MEET OR EXCEED THOSE OF THE "SUPERSTAR TIEBOLT".
5. FLUSHING OF WATER MAINS:
 THE FLUSHING OF ALL WATER MAINS SHALL BE ACCOMPLISHED THROUGH AN ACCEPTABLE FLUSHING (BLOWOFF) ARRANGEMENT COMPRISING OF A GATE VALVE AND REQUIRED LENGTH OF PIPE. THOROUGH FLUSHING AT A MINIMUM VELOCITY OF 2.5 FEET PER SECOND SHALL BE ACHIEVED USING THE OUTLET SIZE OPENINGS LISTED BELOW. (40 P.S.I. RESIDUAL PRESSURE MUST BE MAINTAINED IN THE WATER MAIN).


		CITY OF TEMPLE ENGINEERING DEPARTMENT	
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		GENERAL WATER NOTES	
		<small>SCALE: N.T.S.</small>	

PIPE SIZE (IN)	REQUIRED GPM AT 2.5 FPS	FLUSH VALVE AND PIPE SIZE (IN)
6	220	4"
8	400	4"
10	660	6"
FOR ALL OTHER PIPE SIZES, ENGINEER TO SPECIFY FLUSH VALVE AND PIPE SIZE PER AWWA C651		

ALL DEAD END WATER MAINS SHALL HAVE AN ADEQUATELY SIZED FLUSH ASSEMBLY TO FACILITATE PERIODICAL FLUSHING OF THE WATER LINES. CONTRACTOR SHALL STUDY THE PLANS AND MAKE PROVISIONS TO COMPLY WITH THIS REQUIREMENT. ANY ADDITIONAL COST TO THE CONTRACTOR FOR COMPLYING WITH THIS REQUIREMENT SHALL BE BORNE BY THE CONTRACTOR.

6. JOINT RESTRAINERS OR ADAPTER FLANGES:
WHEN RESTRAINER FLANGES ARE SPECIFIED ON PLANS, OR WHERE THE CONTRACTOR ELECTS TO USE THEM, THE FLANGES WILL MEET OR EXCEED THE REQUIREMENTS/SPECIFICATIONS OF UNI-FLANGE SERIES 1300 OR 1500 FOR PVC PIPE OR SERIES 200 FOR DUCTILE IRON PIPE. INSTALLATION OF THESE ITEMS WILL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS FOR THE TYPE OF MATERIAL USED. (THE CONTRACTOR WILL SUPPLY THE INSPECTOR WITH COPIES OF THE MANUFACTURER'S INSTALLATION SPECIFICATIONS PRIOR TO INSTALLATION OF THESE ITEMS).
7. ALL WATER LINES MUST BE CONSTRUCTED IN ACCORDANCE WITH CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, CHAPTER 290.
8. ALL WATER MAINS SHALL BE PRESSURE TESTED FOR A PERIOD NOT LESS THAN 4 HOURS AND AT A PRESSURE NOT LESS THAN 150 PSI (REFER TO TABLE 506.5(a) OF STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION--NOT CENTRAL TEXAS). THOROUGHLY DISINFECTED (AWWA C651), AND PASS MICROBIOLOGICAL ANALYSIS BEFORE BEING PLACED IN SERVICE.
9. MINIMUM DEPTH FOR ALL WATER MAIN LINES SHALL BE 42 INCHES FROM FINAL GRADE TO TOP OF PIPE.
10. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED IN 8 MIL POLYETHYLENE IN ACCORDANCE WITH ANSI/AWWA C105/A21.5-99 (POLYETHYLENE ENCASEMENT) FOR CORROSION PROTECTION.
11. PIPE CLEANLINESS:
EVERY EFFORT SHALL BE MADE TO KEEP PIPE LINES CLEAN DURING INSTALLATION, FOREIGN MATERIAL SHALL BE PREVENTED FROM ENTERING THE PIPE WHILE IT IS BEING PLACED IN THE TRENCH.
12. METER BOXES:
METER BOXES TO BE FURNISHED AND INSTALLED BY THE CITY OF TEMPLE AND PAID FOR BY PERMITTEE AT THE TIME OF METER INSTALLATION.

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APPROVED BY: Michael Newman, P.E. DRAWN BY: Chris Peal		 DSAB APPROVED DATE: FILE NAME: GENERAL WATER.dwg		CITY OF TEMPLE ENGINEERING DEPARTMENT <small>3210 E. Avenue H, Bldg. A</small> <small>TEMPLE, TX. 76501-8402</small>		GENERAL WATER NOTES SCALE: N.T.S.	