

GENERAL NOTES FOR WATER SYSTEMS

I. GENERAL:

1. ALL WATER SYSTEM IMPROVEMENTS SHALL BE IN ACCORDANCE WITH APPROVED PLANS, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK) INCLUDING SUPPLEMENTS THERETO, AMERICAN WATER WORKS ASSOCIATION STANDARDS , THESE STANDARD DRAWINGS, THE CONDITIONS OF PERMITS OR LICENSES REQUIRED AND TO THE SATISFACTION OF THE CITY ENGINEER. THE CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR AT LEAST 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION.
2. THE CONTRACTOR SHALL PROVIDE MATERIAL AS SPECIFIED ON PLANS AND/ OR CALLED FOR IN THE PROJECT SPECIFICATIONS, BY MANUFACTURER AND MODEL, OR OFFER AN EQUIVALENT MATERIAL. THE CITY ENGINEER SHALL DETERMINE WHETHER THE EQUIVALENT IS SATISFACTORY BASED ON FUNCTION, DURABILITY AND UNIFORMITY WITHIN THE CITY. THE CITY ENGINEER SHALL BE PROVIDED WITH INFORMATION REGARDING THE ALTERNATIVE MATERIAL AT LEAST 5 WORKING DAYS PRIOR TO USE.
3. THE CONTRACTOR SHALL CONFORM TO THE RULES AND REGULATIONS OF THE STATE OF CALIFORNIA, DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (CAL OSHA).
4. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PROTECTION OF EXISTING FACILITIES.
5. THE CONTRACTOR SHALL MAKE ALL CONNECTIONS TO EXISTING WATER MAINS AS INDICATED ON THE PLANS. ALL EXISTING WATER VALVES SHALL BE OPERATED ONLY BY THE CITY OF BREA PUBLIC WORKS DEPARTMENT PERSONNEL. ALL RESIDENTS AFFECTED BY SUCH OPERATIONS SHALL BE NOTIFIED AT LEAST 72 HOURS IN ADVANCE. THE CONTRACTOR SHALL PROVIDE TEMPORARY FACILITIES REQUIRED TO PROVIDE WATER TO ANY WATER SERVICE THAT WILL BE WITHOUT WATER FOR AN EXTENDED PERIOD DURING THE CONSTRUCTION PERIOD.

II. TRAFFIC CONTROL AND PAVEMENT REPLACEMENT:

1. THE CONTRACTOR SHALL CONDUCT HIS OPERATION TO CAUSE THE LEAST POSSIBLE OBSTRUCTION AND INCONVENIENCE TO THE PUBLIC. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY ENGINEER PRIOR TO THE CLOSURE OF ANY PUBLIC STREET OR LANE OF TRAFFIC. ALL CONDITIONS IMPOSED BY THE CITY ENGINEER SHALL BE IN EFFECT AS THOUGH STATED HEREIN. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SAFETY DEVICES TO CONFORM TO THE CURRENT WORK AREA TRAFFIC CONTROL (WATCH) HANDBOOK.
2. THE CONTRACTOR SHALL SAWCUT THE EXISTING PAVEMENT SECTION TO A DISTANCE OF 12" (INCHES) OUTSIDE OF THE TRENCH WIDTH. THE CONTRACTOR SHALL INSTALL AND REMOVE ANY TEMPORARY ASPHALT PAVEMENT REQUIRED FOR TRAFFIC CONTROL. THE CONTRACTOR SHALL REPLACE THE EXISTING PAVEMENT SECTION PER CITY OF BREA STD PLAN 102. BACKFILL AND BEDDING SHALL BE PLACED PER CITY OF BREA STD PLAN 313.



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III. WATER MAINS AND FITTINGS MATERIALS:

1. WATER MAIN PIPE SHALL BE OF DUCTILE IRON MATERIAL, MANUFACTURED IN CONFORMANCE WITH AWWA C151. WATER MAIN PIPE SHALL HAVE BELL AND SPIGOT, PUSH ON, RUBBER GASKET JOINTS IN CONFORMANCE WITH AWWA C111, OR JOINTS AS SHOWN ON THE PLANS. WATER MAIN PIPE SHALL BE CEMENT OR MORTAR LINED AND BITUMUNOUS COATED IN CONFORMANCE WITH AWWA C104. ALL WATER MAIN PIPES 12" (INCHES) AND SMALLER IN DIAMETER SHALL BE THICKNESS CLASS 52. WATER MAIN PIPES GREATER THAN 12" (INCHES) IN DIAMETER SHALL BE AS SPECIFIED BY THE IMPROVEMENT PLANS OR BY THE CITY ENGINEER. WATER MAIN PIPE SHALL BE MANUFACTURED BY U.S. PIPE AND FOUNDRY CO. OR PACIFIC STATED IRON PIPE CO., OR APPROVED EQUAL.
2. WATER MAIN FITTINGS SHALL BE OF DUCTILE IRON MATERIAL, MANUFACTURED IN CONFORMANCE WITH AWWA C110 OR C153. ALL FITTINGS SHALL HAVE MECHANICAL JOINT WITH DUCTILE IRON GLANDS IN CONFORMANCE WITH AWWA C111. ALL FITTINGS SHALL BE CEMENT MORTAR LINED AND BITUMINOUS COATED IN CONFORMANCE WITH AWWA C104. ALL BOLTS AND NUTS SHALL BE 316 STAINLESS STEEL.
3. ALL WATER MAINS, FITTINGS, VALVES AND MISCELLANEOUS ASSEMBLIES SHALL BE ENCASED IN POLYETHYLENE MATERIAL IN ACCORDANCE WITH AWWA C105.
4. ALL MATERIALS AND WORK SHALL BE THE PROPERTY OF THE CONTRACTOR UNTIL ACCEPTED BY THE CITY. THE CONTRACTOR SHALL WARRANT THE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF PROJECT ACCEPTANCE BY THE CITY.

IV. WATER MAIN CONSTRUCTION:

1. WATER MAIN PIPES SHALL BE LOCATED AS SHOWN ON THE PLANS, TYPICALLY SIX FEET (6') OUTSIDE CURB-FACE FOR ALL DIRECTIONS, OR AS DIRECTED BY THE CITY ENGINEER. WATER MAIN AND LATERALS SHALL MAINTAIN VERTICAL AND HORIZONTAL SEPARATION FROM SEWER MAINS AND LATERALS AS REQUIRED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES AND DETAILED ON THIS CITY OF BREA STD PLAN 319.
2. WATER MAIN PIPE SHALL BE CONSTRUCTED WITH A COVER BETWEEN TOP OF PIPE AND FINISHED SURFACE AS FOLLOWS, OR AS DETERMINED BY THE CITY ENGINEER:

PIPE DIAMETER	MINIMUM COVER **
6" TO 12" (LOCAL STREET)	42"
16" TO 24" (LOCAL STREET)	48"
6" TO 24" (ARTERIAL HIGHWAY)	48"
OVER 24"	60"

**** WATER MAINS LOCATED IN EASEMENTS OR UNPAVED AREAS SHALL HAVE A DEPTH OF 12" (INCHES) GREATER THAN INDICATED ABOVE.**



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IV. WATER MAIN CONSTRUCTION:

3. WATER MAIN PIPES SHALL BE INSTALLED IN CONFORMANCE WITH AWWA C600. THE PIPE TRENCH BEDDING MATERIAL SHALL BE SHAPED TO PROVIDE CONTINUOUS CONTACT WITH THE WATER MAIN PIPE, EXCEPT AT JOINTS. THE PIPE TRENCH WIDTH, INVERT SHAPE, BEDDING AND BACKFILL MATERIALS SHALL BE IN ACCORDANCE WITH THIS CITY OF BREA STD PLAN 313. THE PIPE TRENCH SHALL BE BACKFILLED OR PLATED AT THE END OF THE WORK DAY.
4. THE TRENCH BACKFILL MATERIAL SHALL BE COMPACTED USING A VIBRATORY TAMPING MACHINE. COMPACTION USING JETTING OR FLOODING METHODS ARE NOT ALLOWED. THE CITY WILL REQUIRE FIELD COMPACTION TESTS TO ENSURE THE ADEQUATE COMPACTION OF THE TRENCH BEDDING AND BACKFILL.
5. AIR RELEASE VALVE ASSEMBLIES PER CITY OF BREA STD PLAN 308 SHALL BE INSTALLED AT ALL HIGH POINTS IN THE WATER SYSTEM. BLOW-OFF HYDRANT PER BREA STD PLAN 307 OR FIRE HYDRANT PER CITY OF BREA STD PLAN 306 SHALL BE INSTALLED AS REQUIRED BY CITY ENGINEER AT THE END OF DEAD END CUL-DE-SACS PER CITY OF BREA STD PLAN 307. ALL PIPES AND FITTINGS SHALL BE CONSTRUCTED WITH THRUST BLOCKS OR RESTRAINT PER CITY OF BREA STD PLAN 312. ALL NEW WATER FACILITIES SHALL BE PRESSURE TESTED AND DISINFECTED PER AWWA STANDARDS.
6. CONCRETE SHALL BE THE CLASS INDICATED ON THE STANDARD PLAN OR CLASS 470-C-2500, PER REQUIREMENTS OF SECTION 201-1, "PORTLAND CEMENT CONCRETE" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION). ABOVE-GROUND CONCRETE SHALL BE FLOATED TO A FLAT SURFACE, STEEL TROWEL FINISHED, AND EDGED TO A ONE-HALF INCH (1/2 ") RADIUS.



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