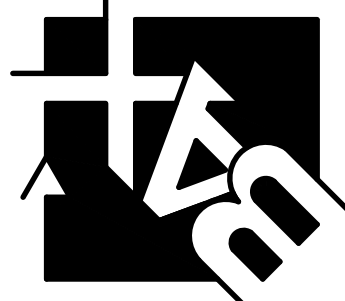
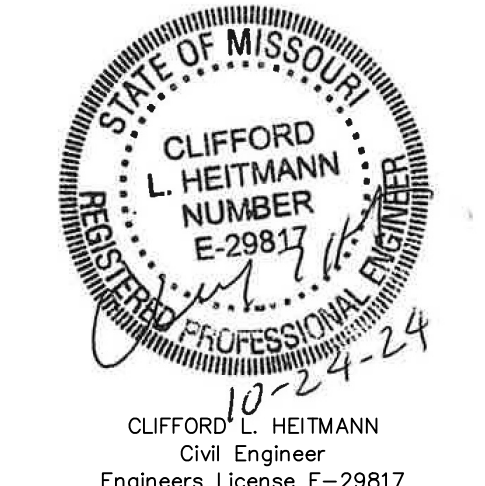


PROJECT TITLE:
THORNWOOD APARTMENTS
THORNBUARY CROSSING DRIVE
O'FALLON, MO 63366

ENGINEERING
PLANNING
SURVEYING
 221 Point West Blvd.
 St. Charles, MO 63301
 636-928-5552
 FAX 636-928-1718



DISCLAIMER OF RESPONSIBILITY
 I hereby certify that the documents intended to be authenticated by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other drawings, specifications, estimates, reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey.



REVISIONS

07-25-24	CITY COMMENTS
08-15-24	CITY COMMENTS
10-24-24	CITY COMMENTS

Box Engineering Company, Inc.
 Missouri State Certificate of Authority
 Engineering #000055
 Missouri State Certificate of Authority
 Surveying #000144

Developer / Owner:
MRS. TROMBONE LLC
1100 WOODCHASE LANE
CHESTERFIELD, MO 63071
314-469-0029

P-T-Z No. 23-010426
Approval Date: 1-4-24
City No. #
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WATER PLAN

CHAPTER 700. PUBLIC UTILITIES ARTICLE XIII. EXTENSIONS
SECTION 700.580. SPECIFICATIONS FOR INSTALLATION OF WATER MAINS, SERVICES, HYDRANTS AND TESTING.

R.O. 2008 § 700.580; R.O. 2007 § 700.580; ORD. NO. 1810 ART. II, § 3, 1-7-1990

A. THE INSTALLATION OF ALL WATER MAINS AND SERVICES CONNECTING WITH THE CITY WATER SYSTEM SHALL BE INSPECTED AND APPROVED BY THE CITY. THE DEVELOPER'S ENGINEER MUST FURNISH THE CITY WITH COPIES OF AS-BUILT PLANS AND A LETTER OF VERIFICATION THAT ALL WATER MAINS AND SERVICES ARE PROPERLY INSTALLED ACCORDING TO THE APPROVED PLAN AND MEET WITH THE FOLLOWING SPECIFICATIONS:

B. IN GENERAL, WATER MAINS SHALL BE DUCTILE IRON OR POLY VINYL CHLORIDE (PVC) PIPE. WHEN PVC IS USED, TRACER WIRE SHALL BE LAID WITHIN THREE (3) INCHES ABOVE THE PVC PIPE TO ENABLE THE CITY TO LOCATE PIPE. A THREE-FOOT LONG PIG-TAIL OF TRACER WIRE SHALL BE LEFT COILED IN EACH VALVE BOX. DUCTILE IRON PIPE SHALL CONFORM TO AMERICAN STANDARDS ASSOCIATION (A.S.A.) STANDARD A 21.51 AND HAVE CLASS 51 WALL THICKNESS. POLY VINYL CHLORIDE (PVC) PIPE SHALL CONFORM TO AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) SPECIFICATION D2241. THE MATERIAL USED TO PRODUCE THE PIPE SHALL CONFORM TO AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) D1784, TYPE 1, GRADE 1, TWO THOUSAND (2,000) POUNDS PER SQUARE INCH (P.S.I.) DESIGN STRESS. THE STANDARD DIMENSIONAL RATIO SHALL BE SDR 21, AND THE PIPE SHALL BE RATED FOR TWO HUNDRED (200) POUNDS PER SQUARE INCH (P.S.I.) WORKING PRESSURE. DUCTILE IRON PIPE SHALL BE CEMENT LINED AND SEAL COATED ON THE INTERIOR IN ACCORDANCE WITH AMERICAN STANDARDS ASSOCIATION (A.S.A.) STANDARD A 21.4. THE EXTERIOR DUCTILE IRON PIPE SHALL BE COATED IN ACCORDANCE WITH AMERICAN STANDARDS ASSOCIATION (A.S.A.) STANDARD A 21.51. ALL WATER MAIN FITTINGS SHALL BE DUCTILE IRON CONFORMING TO THE REQUIREMENTS OF AMERICAN STANDARDS ASSOCIATION (A.S.A.) STANDARD A 21.4 AND THE EXTERIOR SHALL BE COATED IN ACCORDANCE WITH AMERICAN STANDARDS ASSOCIATION (A.S.A.) STANDARD A 21.10. JOINTING FOR PIPE SHALL BE PUSH-ON TYPE OR MECHANICAL JOINTS. ALL FITTINGS SHALL HAVE MECHANICAL JOINTS. THE JOINTS SHALL CONFORM TO AMERICAN STANDARDS ASSOCIATION (A.S.A.) STANDARD A 21.11 AND ALL GASKETS SHALL BE SYNTHETIC RUBBER. ALL JOINTING TYPES AND METHODS SHALL BE APPROVED BY THE CITY ENGINEER OR PUBLIC WORKS DIRECTOR, OR HIS/HER DESIGNATE, PRIOR TO INSTALLATION. REFERENCE STANDARD WATER DETAILS, EDITION 1, 1990, WHICH IS ON FILE IN THE CITY CLERK'S OFFICE.

C. NO PERSON, FIRM, CORPORATION, PARTNERSHIP, ETC. SHALL INSTALL ANY WATER SERVICE PIPE CONNECTING WITH THE WATER MAINS OF THE CITY AT ANY POINT, UNLESS SUCH WATER SERVICE PIPE IS SEAMLESS, ANNEALED, SOFT TEMPER, FLEXIBLE COPPER TUBING, TYPE "K" OR POLYETHYLENE PIPE PE 3408 (CTS-QD) RATED AT TWO HUNDRED (200) P.S.I. AT SEVENTY-THREE DEGREES FAHRENHEIT (73° F.), OF ONE (1) CONTINUOUS LENGTH, WITHOUT INTERMEDIATE COUPLINGS, FROM TAP-IN WATER MAIN TO SHUT-OFF BOX IN THE WATER MAIN AND AT RIGHT ANGLES TO THE CITY WATER MAIN AT THE PLACE OF THE TAP, WHERE REMOTE METERS ARE INVOLVED. THE SERVICE PIPE FROM THE SHUT-OFF BOX TO THE WATER METER SHALL BE TYPE "K" COPPER OR APPROVED MATERIAL AS SET OUT IN SECTION 700.570, AND SHALL COMPLY WITH THE BOCA PLUMBING CODE. IN THE EVENT OF DAMAGE TO THE WATER SERVICE PIPE DUE TO CUTTING, STRETCHING OR WEAKENING IN ANY MANNER, THE WATER SERVICE PIPE SHALL BE REPLACED. ALL WATER LINES AND SERVICE LINES SHALL HAVE A MINIMUM OF THREE AND ONE-HALF (3 1/2) FEET OF COVERAGE. ALL SERVICE PIPE SHALL BE NOT LESS THAN THREE-FOURTHS (3/4) INCH IN DIAMETER.

D. THE BOTTOM OF TRENCH IS TO BE CUT TRUE AND EVEN SO THAT THE BARREL OF THE PIPE WILL HAVE A PROPER BEARING FOR ITS FULL LENGTH. THE WATER PIPE SHALL NOT REST ON ANY UNYIELDING STRUCTURE NOR SHALL IT ACT AS A SUPPORT FOR ANY STRUCTURE. THE TRENCH IS TO BE OF SUFFICIENT WIDTH TO ALLOW BACKFILL TO BE PROPERLY INSTALLED AROUND THE LOWER HALF OF THE PIPE. BACKFILL FOR PVC OR DUCTILE IRON PIPE FROM THE TRENCH BOTTOM UP SHALL BE EARTH BACKFILL MATERIAL, FREE OF DELETERIOUS MATERIAL AND WATER JETTED WHEN IN PUBLIC RIGHTS-OF-WAY. WHERE ROCK EXCAVATION IS ENCOUNTERED, PIPE SHALL BE LAID ON A SIX-INCH BED OF GRANULAR BEDDING (THREE-FOURTHS (3/4) INCH SIEVE). PVC PIPE SHALL BE INSTALLED WITH PROPER BEDDING PROVIDING UNIFORM LONGITUDINAL SUPPORT UNDER THE PIPE. BACKFILL MATERIAL IS TO BE WORKED UNDER THE SIDES OF THE PIPE TO PROVIDE SATISFACTORY HAUNCHING. INITIAL BACKFILL MATERIAL SHALL BE PLACED TO A SUFFICIENT HEIGHT OVER THE TOP OF THE PIPE FOR IMPACT PROTECTION DURING FINAL BACKFILL. ALL PIPE EMBEDMENT MATERIAL IS TO BE SELECTED AND PLACED CAREFULLY, AVOIDING STONES, FROZEN LUMPS, AND DEBRIS. PROPER COMPACTION OF THE HAUNCHING MATERIALS, THAT SECTION OF THE EMBEDMENT EXTENDING FROM THE BOTTOM OF THE PIPE TO THE SPRINGLINE, SHALL BE PERFORMED TO PROVIDE SOIL DENSITIES AS SPECIFIED BY THE DESIGN ENGINEER AT ROAD AND DRIVEWAY CROSSING. TRENCH BACKFILL IS TO CONSIST OF CRUSHED STONE OR GRAVEL COMPACTED BY WATER JETTING OR BY MECHANICAL TAMPING IN TEN-INCH LAYERS. ALL OTHER TRENCH BACKFILL SHALL BE PLACED IN THE TRENCH AND THEN COMPACTED BY MECHANICAL MEANS TO A DENSITY ADEQUATE TO PREVENT DITCH TILLEMENT.

E. CONCRETE WALLS, FOOTINGS, PIERS, ABUTMENTS OR ANY OTHER IMMOVABLE OBJECT SHALL NOT BE POURED DIRECTLY AROUND THE PIPE. INSTEAD, SLEEVES OR SPECIAL WALL CASTINGS SHALL BE USED.

F. THRUST SUPPORTS SHALL BE CONSTRUCTED BEHIND ALL BENDS, TEES, CAPS, PLUGS AND FIRE HYDRANTS. THEY SHALL BEAR AGAINST UNDISTURBED EARTH AND WHERE THIS IS IMPOSSIBLE, THE THRUST SUPPORT SHALL BE MADE CORRESPONDINGLY LARGER TO ALLOW FOR THE SMALLER BEARING CAPACITY OF FILLED GROUND. BACKFILL SHALL BE WITH SUCH MATERIAL AND IS SUCH A MANNER AS WILL CAUSE THE LEAST AMOUNT OF SETTLEMENT AS DETERMINED BY THE LOCATION AND CONDITIONS AT THE TIME WORK IS BEING PERFORMED, AND SHALL MEET THE APPROVAL OF THE CITY STANDARD DETAILS AS PROVIDED HEREIN, EDITION 1, 1990.

G. LUBRICATION ON PIPE FITTINGS AND JOINTS SHALL BE WATER SOLUBLE, NON-TOXIC, NON-OBJECTIONABLE IN TASTE AND ODOOR IMPARTED TO THE WATER, NON-SUPPORTING OF BACTERIA GROWTH, AND HAVE NO DETERIORATING EFFECT ON RUBBER GASKETS.

H. BEFORE WATER MAINS SHALL BE ACCEPTED AND PUT INTO SERVICE, THEY SHALL BE PROPERLY STERILIZED, FLUSHED, AND PRESSURE TESTED ACCORDING TO STANDARD PRACTICES BY THE LANDOWNER, DEVELOPER OR HIS/HER AGENTS, AND TO THE SATISFACTION OF THE CITY. DISINFECTION OF MAINS SHALL CONFORM WITH AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARD C651-86. TWO (2) BACTERIOLOGICAL TESTS SHALL BE MADE BY THE LANDOWNER, DEVELOPER, OR HIS/HER AGENT, AND MUST MEET STATE OF MISSOURI STANDARDS, AND SHALL BE EVIDENCED BY TEST RESULTS FURNISHED TO THE CITY.

I. VALVES SHALL BE AMERICAN WATER WORKS ASSOCIATION (A.W.W.A.) STANDARD LEFT-HAND THREAD, TWO HUNDRED (200) POUNDS WORKING PRESSURE, BRONZE MOUNTED PARALLEL TYPE, DOUBLE DISC, OR COMPRESSION RESILIENT SEAT, "O" RING STEM SEALS, NON-RISING STEM WITH TWO (2) INCH SQUARE NUT. VALVE BOXES SHALL BE CAST IRON ADJUSTABLE SCREW TYPE FIVE AND ONE-QUARTER (5 1/4) INCH SHAFT WITH BASE, WATER COVER AND SKIRT.

J. FIRE HYDRANTS SHALL BE AMERICAN WATER WORKS ASSOCIATION (A.W.W.A.) STANDARD COMPRESSION DRYTAP, TWO PIECE STAND PIPE, FIVE AND ONE-QUARTER (5 1/4) INCH VALVE OPENING, WITH SIX (6) INCH INLET CONNECTION; TWO (2), TWO AND ONE-HALF (2 1/2) INCH NOZZLES AND ONE (1) FOUR AND ONE-HALF (4 1/2) INCH STEAMER NOZZLE. MECHANICAL JOINT INLET WITH CAST IRON RETAINER GLANDS WITH SET SCREWS. CENTER FLANGE OF HYDRANT IS TO BE SET THREE (3) INCHES ABOVE FINISHED GROUND LINE. CAST IRON FITTINGS SHALL BE CEMENT MORTAR, LINED WITH BITUMINOUS SEAL COAT INSIDE AND OUT. FITTINGS TWELVE (12) INCHES AND SMALLER SHALL HAVE A PRESSURE RATING OF TWO HUNDRED FIFTY (250) POUNDS PER SQUARE INCH (P.S.I.). ALL FIRE HYDRANTS SHALL CONFORM TO A.W.W.A. STANDARD C502 AND SHALL BE MUELLER CENTURION A-423 BREAKAWAY OR AMERICAN-DARLING B-62-B BREAKAWAY HYDRANTS, OR EQUAL AND CITY ENGINEER APPROVED WITH NATIONAL STANDARD THREADS. EACH FIRE HYDRANT SHALL BE EQUIPPED WITH AN AUXILIARY SHUT-OFF VALVE ACCORDING TO VALVE SECTION (I) ABOVE.