Exhibit A

FOX CHAPEL AUTHORITY
STANDARD SPECIFICATIONS FOR MATERIALS
AND INSTALLATION OF WATER MAINS

Requests for extensions to Authority water mains shall be made in writing by the owner or owners of the property to be served. Such requests shall outline the scope of work and the intent of the owner.

In all of the following the word “Owner” shall be used to designate the owner of the property to be served.

Applications for extensions of the Authority mains shall be accompanied by a plan in triplicate indicating the proposed construction:

- Plans shall be the standard size of 24” x 36”.
- Drawings shall be in ink or blueprint copies of the original.
- A uniform scale of one inch equaling fifty feet shall be used.
- Details shall be indicated on the standard size sheets at a scale of one-quarter inch equaling one foot or larger.

All materials and methods of construction for new waterlines to be served from the Authority mains shall conform to the following:

EXCAVATION

(A) Water lines are to be laid in trenches with a minimum cover of 4 feet, and a maximum cover of 5 feet below finished ground surface or proposed road grade as specified on the plans or as required to secure proper alignment. Bell holes must be excavated around all joints, and trenches must be of sufficient width to permit proper installation of the joints and inspection of the work. Care must be taken in excavating the bottom of the trench to secure a uniform grade so that the pipe will rest upon it throughout its entire length. Excavation shall be made for all bell holes before lowering the pipe into the trench. Where rock is encountered, the excavation shall be carried below the bottom of the pipe for a depth of 6 inches and then shall be backfilled with select earth or clay that is well tamped to the proper grade.

(B) The minimum width of the water line trench shall be as follows:

1. For pipelines less than 6 inches nominal diameter – the minimum trench width shall be 18 inches.
2. For pipelines 6 inches to 24 inches nominal diameter – the minimum trench width shall be equal to the pipe barrel outside diameter plus 12 inches.

BACKFILL

(A) Pipe trenches shall be thoroughly backfilled by tamping in layers, which layers shall not exceed 12 inches in depth, to a point 2 feet above the top of the pipe. From this location to the top of the trench, backfilling operations shall be conducted in such a manner as to make the roads usable and passable and acceptable to the municipality. The backfill shall be thoroughly tamped by means of a mechanical tamper, sufficient to prevent after-settlement. Where pipe lines are laid through cinders, slag or other unsuitable material, no such materials shall be used for backfilling against the pipe and only clay or earth free from such material shall be used for backfill around the pipe and should be thoroughly tamped to a thickness of not less than 24 inches above the pipe for protection from the cinders, slag or other such material. Where part of the fill is made with rock excavation from the trench, the first 2 feet of fill above the pipe shall be made with earth or clay free from rock, placed in 12 inch layers and well tamped. From this point broken up rock may be used provided it is broken in pieces not to exceed 2 inches in the longest direction and the voids filled with earth or clay, which shall thoroughly surround each piece of rock.

(B) All trenches after being backfilled shall be maintained in good condition by the owner for a period of 18 months after the trench has been backfilled completely, or until the municipality has assumed the responsibility for this maintenance and has so advised the Authority in writing. The final grade of the backfill shall be even with the grade of the roadway or existing ground and shall be so maintained for a period of 18 months or until the municipality has assumed responsibility for maintenance of the trench and has so advised the Authority in writing.

REMOVAL OF WATER

(A) At all times during the construction of the work, ample means and equipment shall be maintained for the prompt removal of all water entering the excavation or other parts of the work, and said excavation shall be kept dry until the structures to be built therein are completed. No masonry shall be laid in water and water shall not be allowed to rise over masonry until the concrete or mortar has set at least 24 hours. All water pumped or drained from the work hereunder be disposed of in a suitable manner without damage to adjacent property or to other work under construction.

BLASTING

(A) All blasting shall be done only with the approval of the Authority, or its authorized representatives. No blasting shall be done adjacent to the existing lines and other structures of the Authority which may be damaged through blasting operations and, in any case, permission of the Authority or its authorized representatives must be secured as to whether or not blasting operation will be permitted. All blasts shall be covered with heavy timbers chained together or other type of acceptable blasting mat. Permission to blast granted by the Authority relates only to the property or interest of any other person. Any damage caused by blasting shall be the responsibility of the Owner or Contractor or both. Caps and other explosives shall in no case be stored together.

COOPERATION WITH THE AUTHORITY

(A) The Contractor is hereby placed on notice that in performing his operations, he shall fully cooperate with the Fox Chapel Authority personnel so as to cause minimum disturbances to the normal operation of the distribution system. Under no circumstances will the Contractor operate valves or hydrants on the existing water system. If it is necessary to open or close any of the existing valves he shall contact Fox Chapel Authority and the valves will be operated by the Authority personnel. Shut-down of existing water mains and the cutting thereof, for the connection of the proposed water mains, shall be made at such time as directed by the Authority or its representatives.

PIPE

(A) All pipe shall be ductile iron pipe centrifugally cast in metal or sand lined molds and conforming to ANSI / AWWA C151 / A21.51 specifications. Ductile Iron shall have a minimum tensile strength of 60,000 pounds per square inch, a minimum yield strength of 42,000 pounds per square inch and a minimum elongation of 10 percent. All pipe shall be of thickness classification 52 having the following minimum thickness:

PIPE SIZE	WALL THICKNESS
4”	0.29”
6”	0.31”
8”	0.33”
10”	0.35”
12”	0.37”

(B) Pipe to be furnished with push-on joint ends will conform to the applicable requirements of ANSI / AWWA C111 / A21.11 of the latest revision.

(C) Pipe shall be furnished with a minimum of 1/8" thick cement mortar lining in accordance with the latest revision of ANSI / AWWA C104 / A21.4 specification and shall have the standard bituminous coating.

(D) Pipe exterior shall be coated with a layer of arc sprayed zinc per ISO 8179. The mass of the zinc applied shall be 200 g/m2 of pipe surface area. A finishing layer topcoat shall be applied to the zinc. The coating system shall conform in every respect to ISO 8179-1 "Ductile iron pipes - External zinc-based coating - Part 1: Metallic zinc with finishing layer. Second edition 2004- 06-01."

FITTINGS

(A) Fittings shall be ductile iron conforming to the applicable requirements of ANSI / AWWA C110 or C153 furnished with cement lining and bituminous coating as previously specified under "Pipe" item (C). In addition to the use of cement lining, fittings that have their internal surfaces protected using a two part thermosetting epoxy coating as per AWWA C116 may also be used.

(B) Unless otherwise specified, all fittings shall have push-on bell ends.

GATE VALVES

(A) Gate valves shall meet or exceed the applicable requirements of AWWA C515 in all respects except that they shall be designed and tested for a differential pressure of 250 PSI and a shell pressure of 500 PSI (Such as Model 2500 by American Flow Control and Model KS-RW by Kennedy Valve).

(B) All bolts and nuts on valves shall be stainless steel. Valves shall open to the left and be furnished with either a 2" square operating nut or hand wheel in accordance with the drawings.

(C) Unless otherwise specified, all valves shall have push-on ('Tyton' joint) bell ends.

FIRE HYDRANTS

(A) All fire hydrants shall be Mueller No. A-423 Super Centurion 250 with (2)- 2½" hose nozzles, (1)- 4½" pumper nozzle, 5¼" valve opening, 4'-6" bury, furnished with a Mechanical Joint shoe and provided with Fox Chapel Authority threads. All bolts and nuts shall be stainless steel. Hydrants shall open clockwise.

(B) The Owner shall furnish and install the hydrant assembly as shown on the attached drawing labeled *'TYPICAL FIRE HYDRANT INSTALLATION'*.

BLOW OFFS

(A) All dead ends on mains require a 2 inch blow off assembly. The Owner shall furnish and install the blow off assembly as shown on the attached drawing labeled *'2" BLOW OFF UNIT'.*

VALVE BOXES

(A) Valve boxes shall be Tyler Series 6860, 3-piece, 5 ¼" shaft, screw-type. Boxes shall have the following base numbers:

VALVE SIZE	BASE
4", 6" & 8"	#6
10", 12" &16"	#160 (oval)

(B) Valve boxes shall be furnished in lengths to conform to the bury of the valve at the different locations. In no case shall the threads be cut to adjust the length of the box.

AIR VALVES

(A) Air release and vacuum valves where noted on the drawings shall be equal to Val Matic and shall be provided with the inlet and outlet piping, fittings and valves as shown on the detailed drawing.

POLYETHYLENE WRAP

(A) All ductile iron pipe, fittings and hydrant shoe/barrel shall be encased in a polyethylene film as specified in Section 4.1.2 of AWWA C105. The polyethylene film shall be 0.004-inch thick high-density, cross-laminated polyethylene film. The color shall be blue and be installed in accordance with the attached specification labeled '*POLYETHYLENE WRAP'.*

THRUST BLOCKING / ANCHORING

(A) All bends in excess of 10 degrees and all plugs, caps and tees along the pipe line shall be blocked with Class C concrete poured solidly between the pipe and firm trench walls and bottom or tied down to anchor blocks in such a manner as to prevent the lines from pulling apart. Class C concrete shall have a water ratio of 7 to 7½ gallons per sack of cement; a cement factor of 5; minimum 28-day strength characteristic of 2,800 pounds per square inch; maximum slump 5 inches; size of coarse aggregate 2½ inches to 1½ inches. All piping shall be supported properly and shall be blocked and/or anchored as above described or shall be tied in by means of rods, bolts or struts to prevent their pulling apart. All

supports, blocking, rods, nuts and collars or clamps proposed must receive the approval of the Authority or its authorized representatives before fabrication.

(B) Should it be impractical, or should the Contractor desire, he may furnish restrained joint fittings and pipes at those points where blocking and/or anchoring by means shown on the standard drawings is not appropriate. The Contractor must obtain the approval of the Authority or its authorized representatives for any substitution for blocking and anchoring. The blocking shall be done in accordance with the attached table labeled *'BLOCKING DETAILS'*.

HYDROSTATIC TESTING

(A) Pipe lines are to be tested at a total gauge pressure of not less than 100 PSI over the static or working pressure (whichever is higher) and shall show leakage not exceeding the value on the attached table labeled *'HYDROSTATIC TESTING'*.

(B) Where practicable, pipe lines shall be tested in lengths between line valves or plugs of not more than 1,500 feet.

(C) Duration of test shall be two hours.

(D) Pipe lines shall be tested before backfilling at joints except where otherwise required by necessity, local ordinances or public convenience.

(E) All visible leaks at exposed joints, and all leaks evident on the surface where joints are covered, shall be stopped regardless of total leakage as shown by test.

(F) All pipe, fittings and other materials found to be defective under test shall be removed and replaced. Lines which fail to meet the test shall be repaired and retested as necessary, until test requirements are met.

DISINFECTION / BACTERIOLOGICAL TESTING

(A) Before being placed in service, the proposed pipe lines shall be properly disinfected with chlorine in the form of sodium hypochlorite or calcium hypochlorite containing 65 percent or more available chlorine. The following quantities of calcium hypochlorite shall be used:

NUMBER OF HYPOCHLORITE TABLETS

(5 GRAMS) REQUIRED FOR DOSE OF AT LEAST 50 MG/L*

18 FOOT LENGTH OF LINE	20 FOOT LENGHT OF LINE
1 for 4”	1 for 4”
2 for 6”	2 for 6”
3 for 8”	3 for 8”

6 for 12” 7 for 12”

*Based on 65% available chlorine

The quantity of sodium hypochlorite used shall be such an amount that a chlorine residual of not less than ten parts per million remains if the water after 24 hours standing in the pipe.

(B) The hypochlorite tablets shall be fastened with an approved food grade adhesive (such as Permatex Form-A-Gasket No. 2) to the inside top of every pipe length as it is being laid. After the hypochlorite tablets have been added, water shall be introduced very slowly into the lines.

(C) Chlorinated water shall be retained in the pipe long enough to destroy all non-spore-forming bacteria. This period shall be at least 24 hours and preferably longer as may be directed. After the hypochlorinated water has been retained for the required time, the chlorine residual at pipe extremities and at other representative points shall be at least 10 parts per million (PPM).

(D) Following hypochlorination, all treated water shall be thoroughly flushed from the newly laid pipe lines at its extremities until total chlorine residual is reduced to 1.0 PPM. The new water line shall be sealed and not disturbed for a minimum of 48 hours after which time samples for bacteria testing will be drawn from the beginning and extremity of each segment as directed by the Authority.

ACCEPTANCE BY AUTHORITY BOARD

The policy of the Authority in respect to the installation and acceptance of water line extensions shall be as follows:

1. The water line shall be constructed by the owner or owners of the property to be served in accordance with plans and specifications approved by the Fox Chapel Authority.
2. All expenses incidental to the laying of the line, including cost of inspection by the Authority representatives, shall be borne by the Owner.
3. Upon completion of the line and its acceptance it shall become the property of the Fox Chapel Authority.
4. The Owner will be required to enter into an agreement with the Authority regarding:
    a. Installation of the water line.
    b. Maintenance of the water line for 18 months following the date of acceptance.
    c. The responsibility of the Owner for any injury or damage occurring to persons or property.

d. Record drawings on 24” x 36” prints and Compact Disk (CADD format) of the water line as installed, prepared by a registered engineer.

e. Easements must be provided by the Owner, if required by the Authority.

f. Bill of Sale.