800 – Water Distribution
HYDRANT PUMP NOZZLE
4" I.D.
5" O.D.
4 THREADS PER INCH

FINISH GROUND LINE
COMBINATION CURB AND GUTTER

VALVE BOX (REQUIRED AT ALL VALVES) TO BE LOCATED IN STREET OR BEHIND CURB

ANCHOR TEE
ANCHORING COUPLINGS OR ANCHORING PIPE REQUIRED.

SECTION VIEW

NOTES

A. FIRE HYDRANTS-MUELLER CENTURION, OR APPROVED EQUAL, NO. A-423; MECHANICAL JOINT; TWO 2-1/2 INCH HOSE NOZZLE WITH NATIONAL STANDARD THREAD CONNECTIONS; PUMPER NOZZLE TO BE 5" STORTZ MANUFACTURED BY HARRINGTON OR APPROVED EQUAL.
B. GATE VALVES SHALL BE AWWA C-515, RESILIENT WEDGE, NON-RISING STEM, MECHANICAL JOINT, 150 PSI WORKING PRESSURE, CCW TO OPEN WITH ARROW INDICATING OPEN DIRECTION, MUELLER OR EQUIVALENT.
C. VALVE BOXES SHALL BE 3-PIECE, ADJUSTABLE 36 INCH TO 48 INCH, 5-1/4 INCH ADJUSTABLE SHAFT, 6 INCH DIAMETER NOMINAL, ADJUSTABLE SCREW TYPE, COVER MARKED "WATER", DOMESTIC MADE ONLY.
D. ALL FITTINGS TO BE MEGALUG RESTRAINED AND THRUST BLOCKED.
E. ALL FITTINGS TO BE AWWA C-153 DUCTILE IRON, COMPACT.
F. ALL VALVES AND HYDRANTS SHALL OPEN LEFT BY TURNING IN A COUNTER CLOCKWISE DIRECTION.
G. CONTRACTOR TO FACE HYDRANT AS REQUIRED BY THE CITY.
H. WATER MAIN SHALL BE DUCTILE IRON PIPE CLASS 52 CEMENT LINED, AWWA C-151, WITH MECHANICAL JOINTS.
I. THE LAYING OF PIPE ON EXISTING DIRT WITH THE BELLS CUT OUT SHALL NOT BE PERMITTED.
J. THE OPEN ENDS OF ALL PIPES AND SPECIAL CASTINGS SHALL BE PLUGGED OR OTHERWISE CLOSED WITH A WATERTIGHT PLUG TO THE APPROVAL OF THE CITY BEFORE LEAVING THE WORK FOR THE NIGHT.
K. THE FIRE DEPARTMENT SHALL COMPLETE A FUNCTION/FLOW TEST PRIOR TO BEING PLACED INTO SERVICE.
L. ALL FIRE HYDRANTS MUST BE THRUST BLOCKED.

BASIC TEE DETAIL PLAN

SPECIAL MECHANICAL JOINT
HYDRANT TEE DETAIL PLAN
REQUIRED LENGTH OF RESTRAINED JOINTS IN FEET

<table>
<thead>
<tr>
<th>D-DIAMETER OF PIPE</th>
<th>4&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
<th>10&quot;</th>
<th>12&quot;</th>
<th>16&quot;</th>
<th>20&quot;</th>
<th>24&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 3/4&quot;</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>22 1/2&quot;</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>45'</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>90'</td>
<td>20</td>
<td>25</td>
<td>33</td>
<td>40</td>
<td>47</td>
<td>60</td>
<td>72</td>
<td>85</td>
</tr>
<tr>
<td>TEE</td>
<td>20</td>
<td>25</td>
<td>33</td>
<td>40</td>
<td>47</td>
<td>60</td>
<td>72</td>
<td>85</td>
</tr>
<tr>
<td>END</td>
<td>20</td>
<td>25</td>
<td>33</td>
<td>40</td>
<td>47</td>
<td>60</td>
<td>72</td>
<td>85</td>
</tr>
</tbody>
</table>

NOTES

A. ALL JOINTS TO BE RESTRAINED.

B. BELL JOINT RESTRAINTS - USE FIELD LOCK BY U.S. PIPE OR APPROVED EQUIVALENT.

C. MECHANICAL JOINT RESTRAINTS - EBAA IRON MEGALUG RETAINER GLAND OR EQUIVALENT.

D. CONTRACTOR TO USE RESTRAINED JOINTS AND THRUST BLOCKING.

DESIGN PARAMETERS

LAYING CONDITIONS - TYPE 5
SOIL DESIGNATION - SILT
DEPTH OF COVER - 4'-6"
DESIGN PRESSURE - 80 PSI
SAFETY FACTOR - 1.50
BARE PIPE

THIS CHART AND PARAMETERS WILL BE UTILIZED UNLESS APPROVED BY THE UTILITY DIRECTOR.
CONCRETE BLOCKING FOR WATER MAINS

DETAIL - END OF WATER LINE

CONCRETE BLOCKING FOR VERTICAL BENDS

CONCRETE BLOCKING FOR HORIZONTAL BENDS

NOTES

A. CARE SHALL BE TAKEN TO KEEP CONCRETE AWAY FROM MECHANICAL JOINTS BY PLACING VISQUEEN OR OTHER PREAPPROVED MATERIAL OVER PIPE BEFORE PLACING OF CONCRETE. BOLTS SHALL NOT BE ENCASED IN CONCRETE.

B. CONCRETE FOR BLOCKING VALVES AND FITTINGS SHALL CONFORM TO SECTION ODOT 499 QCI CONCRETE, ALLOW 72 HOURS FOR SETTING OF CONCRETE PRIOR TO FILLING WATER MAIN.

C. CONTRACTOR SHALL USE THE THRUST BLOCKS AS SHOWN.

D. ALL VERTICAL THRUST BLOCK IS TO BE ACCOMPANIED WITH ROD CLAMPS AND DUC LUGS WITH 3/4" STAINLESS STEEL THREADED RODS.

BENDS

<table>
<thead>
<tr>
<th>SIZE OF PIPE</th>
<th>DEGREE OF BEND</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 1/4&quot;</td>
<td>22 1/2°, 45°, 90°</td>
</tr>
<tr>
<td>8&quot;</td>
<td>L</td>
</tr>
<tr>
<td>12&quot;</td>
<td>16&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>90°</td>
</tr>
</tbody>
</table>

TEES

<table>
<thead>
<tr>
<th>RUN</th>
<th>BRANCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>3&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>4&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>16&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>18&quot;</td>
</tr>
<tr>
<td>14&quot;</td>
<td>24&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>28&quot;</td>
</tr>
</tbody>
</table>

CONCRETE BLOCKING FOR WATER MAINS

CITY OF PIQUA

ACCESS Engineering Solutions

DATE APPROVED: DEC. 2016

PAGE No. 800-3

02-08-17 800-3
WHENEVER A SANITARY SEWER AND WATER LINE MUST CROSS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER LINE. IF IT IS ABSOLUTELY IMPOSSIBLE TO MAINTAIN THE 18-VERTICAL SEPARATION, THE SANITARY SEWER SHALL BE CONSTRUCTED WITH WATER LINE TYPE MATERIALS WHICH WILL WITHSTAND A 50 PSI PRESSURE TEST. THESE REQUIREMENTS WILL EXTEND FOR A DISTANCE OF 10 FEET, MEASURED PERPENDICULAR ON BOTH SIDES OF THE WATER LINE.

AT CROSSINGS, THE WATER MAIN SHALL HAVE A MINIMUM VERTICAL DISTANCE OF 18 INCHES FROM STORM AND SANITARY SEWERS. ALSO ONE FULL LENGTH OF WATER MAIN SHALL BE LOCATED SO THE JOINTS ARE AS FAR FROM THE STORM SANITARY SEWERS AS POSSIBLE.

A GRANULAR BEDDING SHALL BE CRUSHED STONE OR GRAVEL, (#57 OR #67) OR OTHER APPROVED EQUIVALENT.

B. ALL TRENCHES OUTSIDE THE RIGHT-OF-WAY FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS CAN BE COMPACTED WITH EXISTING NATIVE MATERIAL IN 12 INCH MAXIMUM LIFTS OR AS APPROVED BY THE CITY. NO MATERIAL SHALL BE USED FOR BACK FILLING THAT CONTAINS STONE, ROCKS, ETC., GREATER THAN 4 INCH DIAMETER.

ALL TRENCHES INSIDE THE RIGHT-OF-WAY FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS SHALL BE COMPACTED WITH GRANULAR BACKFILL MATERIAL #304, #411 IN 6 INCH MAXIMUM LIFTS.

A DENSITY TEST ON GRANULAR BACKFILL OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAY BE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE CITY.

C. OFF-PAVEMENT AREAS SHALL BE PROVIDED WITH A MINIMUM OF 6 INCHES OF TOPSOIL OVER THE COMPACTED MATERIAL AND THEN SEEDED AND MULCHED PER ODOT ITEM 659.

ALL PAVED AREAS WITHIN THE STREET RIGHT-OF-WAY SHALL FOLLOW THE REQUIREMENTS OF PAGES 300-15 OF THE STANDARD DRAWINGS.

D. THE OPEN ENDS OF ALL PIPES SHALL BE PLugged WITH A WATER TIGHT PLUG TO THE APPROVAL BY THE CITY BEFORE LEAVING THE WORK FOR THE NIGHT.
MATERIAL SPECIFICATIONS

A. WATER MAIN SHALL BE AWWA C-151 DUCTILE IRON PIPE CLASS 52 FOR 4 INCH TO 16 INCH AND CLASS 54 FOR 20 INCH AND GREATER, SLIP JOINT-ON JOINT AND RUBBER GASKETS.

B. BELL JOINT RESTRAINTS- USE FIELD LOCK BY U.S. PIPE OR APPROVED EQUAL.

C. MECHANICAL JOINT RESTRAINTS- EBAA IRON MEGALUG RETAINER GLAND OR EQUAL.

D. FIRE HYDRANTS- MUELLER CERTURION NO. A-423

E. GATE VALVES (THRU 10 INCHES)- AWWA C-515, STYLE CAST IRON LID WITH PENTAGON HEAD C-800, 300 PSI RATED (FORD, MUELLER, CUMBRIDGE OR MCDONALD)

F. VALVE BOXES- 3-PIECE CAST IRON 6 INCH DIAMETER NOMINAL, ADJUSTABLE SCREW TYPE, COVER MARKED “WATER” DOMESTIC MADE ONLY.

G. SERVICE LINE- TYPE “K” COPPER TUBE WITH COMPRESSION OR FLARED TYPE FITTINGS. ALL FITTINGS TO BE LEAD FREE.

H. CURB STOP- BRASS CONFORMING TO AWWA C-800, 300 PSI RATED (FORD, MUELLER, CUMBRIDGE OR MCDONALD)

I. CURB BOXES-2 ½ INCH SCREW TYPE, BUFFALO STYLE CAST IRON LID WITH PENTAGON HEAD PLUG EM-245-67, ONLY IN APPROVED SITUATIONS. METER PITS ONLY IN NEW CONSTRUCTION.

J. ALL SERVICE CONNECTIONS REQUIRE A METER AND OUTSIDE METER PIT (FOR NEW CONSTRUCTION)

K. VALVE SIZING
   • 6 INCH TO AND INCLUDING 10 INCH TO BE A GATE VALVE OPENING LEFT
   • 12 INCHES AND LARGER-TO BE A BUTTERFLY VALVE OPENING LEFT

HYDROSTATIC TEST

A. AFTER THE PIPE HAS BEEN LAID AND BLACKFILLED, ALL NEWLY LAID PIPE OR VALVED SECTION, SHALL BE SUBJECT TO HYDROSTATIC PRESSURE ON LEAKAGE TEST. ALL WATER MAINS MUST BE HYDROSTATICALLY TESTED (AWWA C-600). THE TEST MUST BE PERFORMED BY THE CONTRACTOR IN THE PRESENSES OF A REPRESENTATIVE OF THE CITY OF PIQUA. THE LEAKAGE TEST PRESSURE SHALL BE NOT LESS THAN 200 PSI FOR MAINS ADN 150 PSI FOR COPPER SERVICES. THE DURATION OF THE LEAKAGE TEST SHALL NOT BE LESS THAT 2 HOURS. HYDROSTATIC PRESSURE SHALL BE APPLIED BY MEANS OF A PUMP TAKING WATER FROM AN AUXILIARY SUPPLY. ALL PIPING MUST BE PROPERLY FILLED AND FLUSHED TO DISPEL ALL AIR AND DEBRIS BEFORE THE TEST IS MADE USING POTABLE WATER.

B. LEAKAGE IS DEFINED AS THE QUANTITY OF WATER TO BE SUPPLIED INTO THE NEWLY LAID PIPE, OR ANY VALVE SECTION THEREOF, NECESSARY TO MAINTAIN LEAKAGE TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR EXPELLED.

C. DURING THE HYDROSTATIC TEST, A THOROUGH EXAMINATION OF ALL PIPING, FITTINGS, VALVES, AND HYDRANTS SHALL BE PERFORMED. LEAKING JOINTS SHALL BE TIGHTENED AND THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED. CRACKED OR OTHERWISE DEFECTIVE MATERIAL SHALL BE REMOVED AND REPLACED AND THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.

<table>
<thead>
<tr>
<th>PRESSURE (PSI)</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>18</th>
<th>20</th>
<th>24</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 (17)</td>
<td>0.71</td>
<td>0.95</td>
<td>1.19</td>
<td>1.42</td>
<td>1.66</td>
<td>1.90</td>
<td>2.14</td>
<td>2.37</td>
<td>2.85</td>
<td>3.56</td>
</tr>
<tr>
<td>225 (16)</td>
<td>0.68</td>
<td>0.90</td>
<td>1.13</td>
<td>1.35</td>
<td>1.58</td>
<td>1.80</td>
<td>2.03</td>
<td>2.25</td>
<td>2.70</td>
<td>3.38</td>
</tr>
<tr>
<td>200 (14)</td>
<td>0.64</td>
<td>0.85</td>
<td>1.06</td>
<td>1.29</td>
<td>1.46</td>
<td>1.70</td>
<td>1.91</td>
<td>2.12</td>
<td>2.55</td>
<td>3.19</td>
</tr>
<tr>
<td>175 (12)</td>
<td>0.59</td>
<td>0.80</td>
<td>0.99</td>
<td>1.19</td>
<td>1.39</td>
<td>1.59</td>
<td>1.79</td>
<td>1.98</td>
<td>2.38</td>
<td>2.98</td>
</tr>
<tr>
<td>150 (10)</td>
<td>0.55</td>
<td>0.74</td>
<td>0.92</td>
<td>1.10</td>
<td>1.29</td>
<td>1.47</td>
<td>1.68</td>
<td>1.84</td>
<td>2.21</td>
<td>2.76</td>
</tr>
<tr>
<td>120 (9)</td>
<td>0.50</td>
<td>0.67</td>
<td>0.84</td>
<td>1.01</td>
<td>1.18</td>
<td>1.34</td>
<td>1.51</td>
<td>1.68</td>
<td>2.01</td>
<td>2.52</td>
</tr>
</tbody>
</table>

ALLOWABLE LEAKAGE PER 1000 FT (305M) OF PIPELINE (GPH+)

DISINFECTION

A. AFTER SATISFACTORY HYDROSTATIC TESTING, THE COMPLETED WATER WORK SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C-651 BY THE CONTRACTOR, WITH THE CITY OF PIQUA OVERSEEING, BY MEANS OF LIQUID SODIUM HYDROCHLORIDE INJECTION. AFTER INJECTION TEST SHOULD INDICATE 50 PARTS PER MILLION (PPM) OR HIGHER OF CHLORINE. THE RESIDUAL AFTER 24 HOURS MUST BE 25 PPM OR HIGHER.

B. CHLORINATION TAPS SHALL BE WITH 18 INCHES FROM THE END OF THE PIPE OR VALVE

C. MAINTAIN PIPES FREE OF DIRT AND FOREIGN MATTER DURING CONSTRUCTION BY DEWATERING TRENCH AND SEALING OPEN PIPE BARRELS. THIS IS ALSO A REQUIREMENT IF REPAIRS OCCUR.

D. DECHLORINATE WATER WITH APPROVED AWWA METHOD APPROVED BY THE CITY OF PIQUA.

E. WATER SAMPLES- PERFORM BACTERIOLOGICAL TEST PER AWWA C-651. THIS TEST WILL BE PERFORMED BY PER CITY SCHEDULED PERMITS. AT LEAST ONE SET OF SAMPLES SHALL BE COLLECTED FROM EVERY 1,200 FEET OF NEW WATER MAIN, PLUS ONE SET FROM EACH END OF THE LINE AND AT LEAST ONE SET FROM EACH BRANCH. TWO CONSECUTIVELY NEGATIVE RESULTS WILL CONSTITUTE A PASSABLE TEST. THE CONTRACTOR SHALL FURNISH ALL REQUIRED TESTING APPENDAGES OR EXCAVATION NEEDED BY THE CITY.

F. ADDITIONAL TESTING SHALL BE AT THE CONTRACTORS EXPENSE AND CANNOT CREATE OVERTIME COST UNLESS CONTRACTOR IS WILLING TO PAY FOR IT.

G. ALL CONNECTIONS FROM PROPOSED TO EXISTING MAINS ARE TO BE HAND SWABBED WITH LIQUID SODIUM HYDROCHLORIDE.

CITY OF PIQUA

WATER MAIN MATERIAL AND TESTING

REVISIONS: DATE APPROVED: PAGE No.
02-08-17 8G  DEC. 2016  800-5
NOTES

A. No work shall be approved or accepted by the City unless 2 working days' notice of commencing work is given to the City. All work must be pre-approved.

B. All temporary pavement and sidewalk shall be maintained by the contractor or the developer at his own expense in a suitable and safe condition for traffic until permanent replacement is made or the project is finally accepted by the City, unless otherwise approved.

C. The minimum length of pipe nipples shall be 18 inches unless otherwise approved by the City.

D. All customers shall meet backflow prevention requirements as per City of Piqua standards.

E. All waterline construction including extensions on private property shall follow Miami County plumbing regulations, ODOT 638 and/or AWWA standards whichever is more restrictive as determined by the City and the county inspector.

F. Operation of City fire hydrants, valves, meters, services, stops and all other mechanical infrastructure items is strictly prohibited according to ordinance 53.41.

G. All water mains shall have a minimum depth of 4 1/2' and a maximum depth of 6 feet from top of pipe to the surface, unless required by design.

H. Service line and meter setting installations and all associated costs, including all materials, permits, labor, excavation, equipment, and all meters two inches and larger, and detector check meters are the responsibility of the customer. According to City ordinance 53.44-c.

PIPE

A. All pipe fittings shall be ductile iron.

B. Water main minimum size unless otherwise approved:
   - Residential: 8”
   - Commercial: 10”
   - Industrial: 12”
   6” may be considered for looping purposes in residential areas.

C. Deadends are not permitted and must be looped unless they are deemed impractical by the City. Engineering Department after a review of water main design. When approved, they shall be terminated with a fire hydrant at the end.

EXCAVATION AND PIPE LAYING

A. The open ends of the all pipes shall be closed with a watertight plug with the approval of the City before leaving the work for the night and at other times of interruption of the work.

STORAGE AND HANDLING OF MATERIALS

A. Pipe fittings, valves, fire hydrants, and other materials must be properly stored on the job site. Proper tools for the safe and convenient handling and placing of pipe and fittings shall be used. Care shall be taken to prevent damage coatings of the pipe and fittings, and any damage shall be remedied as directed. No damaged or defective pipe or fittings shall be used.

B. Pipes and fittings shall be thoroughly cleaned before they are used and shall be kept clean until work is completed by using water tight plugs on open ends of pipes in the ground.

FITTINGS, VALVES AND HYDRANTS

A. Fittings or specials in sizes 12 inch through 48 inch shall conform to all requirements of AWWA C-153, fittings and specials 12 inches and smaller shall be class 250. Larger fittings and specials shall be class 150. Fittings and specials shall have mechanical joints and shall be ductile iron. Cluster valves whenever possible unless approved by the City.

B. Maximum spacing unless otherwise approved:

<table>
<thead>
<tr>
<th>Hydrants</th>
<th>Valves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single and two family residential</td>
<td>300'</td>
</tr>
<tr>
<td>Industrial, commercial &amp; multi-family</td>
<td>300'</td>
</tr>
</tbody>
</table>

C. All tees and crosses shall be valved in each direction unless otherwise approved.

D. No valve shall be operated by personnel other than a representative employed by the City.

E. All fittings must be domestic made only.

UTILITY STAKING

A. Offsets every 25 feet on curves, offsets every 100 feet on straight sections. Flow line of water main (cut) marked every 100 feet and offsets shall be clearly marked and every hydrant with top of curb elevation.
NOTES

A. METER PIT TO BE LOCATED AS DIRECTED BY THE CITY.

B. METER SET FEE TO BE PAID PRIOR TO METER INSTALLATION.

C. UNSATISFACTORY INSTALLATION WILL RESULT IN WATER NOT BEING TURNED ON.

D. METER PIT LID MUST BE FLUSH WITH FINISHED GRADE. IF FRAME OF METER LID IS SHOWING, POSSIBILITY OF FREEZING OF METERS AND SERVICE LINES IS INCREASED. CITY’S RESPONSIBILITY STOPS AT THE CURB STOP OR METER PIT.

E. SINGLE CHECK ANGLE VALVE ON OUTLET SIDE OF METER.

WATER PIT NOTES FOR 2" SERVICE

1. CORPORATION STOP-FORD METER BOX FB-600NL

2. TUBE NUT-MUELLER 3H-15430.

3. COPPER TUBE 2 INCH TYPE “K”.

4. ASSEMBLY METER SETTER V8877-95251-003-NL W/ BYPASS FORD METER BOX COMPANY (AS PER CITY SPECS)

5. METER BOX COVER, 20 INCH MINIMUM LID OPENING, MC36 MONITOR COVER, WITH A 21-15/16" X 40K TRUMBULL MANUFACTURING POLY LID

6. METER BOX, HANCOR PIPE OF EQUIVALENT, 36 INCH DIAMETER x 36 INCH HIGH x 2 INCH WALL.

7. IF METER IS REMOVED FROM PREMISES; THE OWNER MUST PAY FOR NEW METER AND SET UP FEE. METER SHALL BE A SENSUS OMNI C2 WITH 17" LAY LENGTH, THIS METER IS THE PROPERTY OWNERS RESPONSIBILITY, ALLOW SIX WEEKS FOR METER SET AND METER.


9. ALL EXISTING WATER MAIN AND SERVICE TO REMAIN ACTIVE UNTIL NEW MAIN HAS BEEN PLACED INTO SERVICE.

10. ALL CURB BOXES OR METERS PITS SHALL BE SET IN THE RIGHT OF WAY ON THE HOUSE SIDE BEHIND THE CURB, AS SHOWN IN PLANS.

NOTE: LID LOCKING BOLT MUST HAVE A STANDARD 27/32 INCH PENTAGON HEAD.

SUBSTITUTION OF MATERIALS LISTED MAY BE MADE ONLY IF APPROVED BY THE CITY OF PIQUA UNDERGROUND UTILITIES DEPARTMENT, 123 BRIDGE STREET PIQUA, OH 45356.
METER PIT DETAIL FOR 3/4" AND 1"

**3/4" AND 1" METER PIT INSTALLATION**

**WATER PIT NOTES FOR 3/4" AND 1" SERVICES**

1. CORPORATION STOP-FORD METER BOX FB-600NL.
2. Tube Nut-Ford Meter Box Company.
3. Copper Tube 2 Inch Type "K".
4. Yoke Angle Valve-Ford Meter Box Company.
5. Yoke-Ford Meter Box Company, 500 Series.
6. Meter Box- Hancore Dual Wall Pipe (box must be 18" x 36" for 5/8" x 3/4" meter and 24" x 36" for 1" or dual meters)
7. Meter Box Cover, Ford A32 11 1/2" lid hole size for a tile size of 18". Ext-1 extension ring for a 24" tile. Lid shall be Trumbull Manufacturing, 167-0074 Pentagon Bolt, 167-3009 WASHER, 1959 Worm Gear, Style "F". MS Wide Plain Washers, 167-5764 12-1/4" OD Meter Lid Polypropylene, MSX 8x12 Machine Screw.
   Note: Meter Box Cover is an inside dimension. The lid size is 1" larger.
8. Locking Nut-Ford Meter Box Company.
9. If Meter is removed from the premises then the owner must pay for a new meter and a meter set up fee.
10. Water service shall be a minimum of 18" above the crown of the sanitary sewer main where the water service crosses the sewer main. Water service may be laid on bench in the sewer lateral trench if crown is at least 18" below the invert of the water service and the sewer lateral is 5'-0".
11. All existing water main and services to remain active until new main has been placed into service.
12. Curb or meters shall be set in the curb lawn or behind box, as shown in plans.
13. Angle Cartridge Style Dual Check Valve Asse 1024 Meter Yoke Inlet by Flare Copper Outlet- Ford Meter Box HHCA92 or Approved Equal (Customer Side Only)

* Ohio Plumbing Code: Sec. 607.3.2. "Backflow Prevention Device or Check Valve" specifies that "where a backflow prevention device, check valve, or other device is installed on a water supply system utilizing storage water heating equipment such that thermal expansion causes an increase in pressure, a device for controlling pressure shall be installed."

**NOTES**

A. Lid Locking Bolt must have a standard 27/32" Pentagon Head.
B. Substitution of materials listed may be made only if pre-approved by the City of Piqua Underground Utilities Department.
C. No Plastic or Soldered joints in Meter Pit.
D. All Brass fittings to be for, Mueller, A.Y. McDonald, Cambridge or Approved Domestic Fittings. Connection must be leak free and inspected by the Underground Utilities Department.
E. Flare or Compression may be used.
F. Do not cross Copper tubing in Meter Pit.
G. The lid to water pit must be level with finish grade prior in installing water meter. Meter Pit must be not less than 3'0" from the flair of a driveway or approach.
1. Water Main
2. Corporation Stop Ford FB-600NL
3. Type 1" K-Copper
4. Curb Stop
5. Curb Box 2 1/2" 94 E
6. 10' of 1" Service Extension
7. Concrete Block

Notes:
1. Ensure curb box is plumb over curb stop after backfilling around curb box.
2. Curb box flush with final grade.
3. Copper service line is bedded and covered with no less than 12 inches of sand.
1. PIT SHALL BE MASONRY EITHER PRECAST OR POURED IN PLACE WITH QC1, VAULT WILL HAVE A MINIMUM OF 6'-0" CLEAR HEIGHT.
2. AUTOMATIC SUMP PUMP WITH MINIMUM DISCHARGE OF UP TO 500 GPH IS REQUIRED.
3. STEPS SHALL BE PLASTIC 12" O.C. AS MANUFACTURED BY MA INDUSTRIES (PS1-PF) OR EQUAL.
4. ALL PIPE SHALL HAVE MIN 48" COVER AND MINIMUM 18" FROM FLOOR.
5. NO FIELD SOLDERED JOINTS IN THE PIT.
6. ALL FIRE LINE PIPE SHALL BE D.I. CLASS 51 WITH FLANGED END TO OUTLET VALVE OF DOUBLE DETECTOR CHECK ASSEMBLY.
7. ALL FIRE LINE VALVES SHALL BE FLANGED ENDED, HANDWHEEL OPERATED, RISING STEM OS&Y, OPEN IN SAME DIRECTION AND MUST BE CLOSED RIGHT.
8. AN OEPA APPROVED DOUBLE DETECTOR CHECK VALVE ASSEMBLY SHALL BE FITTED WITH NECESSARY SCH40 BRASS PLUMBING, MANUFACTURER APPROVED DETECTOR CHECK METER, AND OEPA APPROVED BACKFLOW ASSEMBLY. SEE LATEST OEPA BACKFLOW PREVENTION PUBLICATION.
9. ALL DOMESTIC PIPING SHALL BE DCI CL 51 OR BRASS FOR 3" AND LARGER. SAME SIZE DIAMETER BY-PASS REQUIRED ON 2" AND LARGER SERVICE LINES.
10. METER SHALL BE SENSUS OMNI C2, FOLLOW RECOMMENDED MANUFACTURERS SPECIFICATIONS OF SIZES BASED ON WATER LINE SIZE.
CONTINUED

10. METER FLANGED END MUST BE UNI-FLANGED
11. ALL DOMESTIC VALVES SHALL BE FLANGED END, HAND WHEEL OPERATED, RISING STEM, OS&Y RESILIENT WEDGE GATE TYPE FOR 3" OR LARGER AND FULL PORT BALL WITH PADLOCK WINGS FOR 2" AND SMALLER.
12. DOMESTIC WATER METER SHALL BE SUPPLIED BY THE CONTRACTOR TO BE INSTALLED WITH OTHER PIPING FOR PROPER ALIGNMENT.
13. MONITOR METER MUST BE APPROVED BY CITY, IF NOT PURCHASED FROM THE CITY OF PIQUA. METER MUST READ IN GALLONS AND MUST BE A SENUS TYPE C-2 METER WITH A T-2 LENGTH.
14. CONTRACTOR TO COORDINATE ALL MATERIALS AND SPECIFICATIONS WITH SHANE JOHNSON (937-778-2018) PRIOR TO CONSTRUCTION.

REINFORCEMENT:
BASE SLAB #4 BARS @ C.C.E.W. WITH 1 1/2" COVER TOP LAYER OF QC1 CONCRETE.
WALLS- #4 BARS @ 12" C.C.E.W. CENTERED IN WALLS
TOP SLAB- #4 BARS @ 10 C.C.E.W. TOP AND BOTTOM LAYERS WITH 1 1/2" COVER OF QC1 CONCRETE.

NOTES:
1. ALL LINK SEALS ARE TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
2. HOLE SIZES TO BE 4" LARGER THAN DUCTILE IRON PIPE FOR PROPER LINK SEAL INSTALLATION.
A. Testable double check valve (ASSE 1015) at point of connection to domestic piping

B. Lockable valves "supervised" per Ohio Basic Building Code 10:20

C. Past the sprinkler heads at the end of the line a hose bib shall be installed for testing purposes.

NOTE:
A. Addition of backflow device onto existing fire suppression system will affect original flow calculation.
NOTE

A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE DELIVERED FOR INSTALLATION COMpletely ASSEMBLED BY THE ORIGINAL MANUFACTURER WITH ALL COMPONENTS AS APPROVED.

B. ADDITION OF BACKFLOW DEVICE ONTO EXISTING FIRE SUPPRESSION SYSTEMS WILL AFFECT ORIGINAL FLOW CALCULATIONS.

C. CLASS 53 DUCTILE IRON TO VALVE. ALL JOINTS RESTRAINED.

D. BACKFLOW REGULATIONS SHALL BE PER EPA'S CURRENT REGULATIONS.
NOTE
A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE DELIVERED FOR INSTALLATION COMPLETELY ASSEMBLED BY THE ORIGINAL MANUFACTURER WITH ALL COMPONENTS AS APPROVED.

B. CLASS 53 DUCTILE IRON TO VALVE. ALL JOINTS RESTRAINED.

C. BACKFLOW REGULATIONS SHALL BE PER EPA'S CURRENT REGULATIONS.
NOTES
A. SEE "STANDARDS FOR TAPS, SERVICES ADN METERS" FOR TYPICAL NOTES.
B. BACKFLOW PREVENTION DEVICE REQUIRED TO MEET CURRENT EPA REGULATIONS.
C. PROVIDE APPROVED DRAIN FOR IRRIGATION SYSTEM.
D. ALTERNATE DESIGNS MUST BE SUBMITTED FOR APPROVAL.
E. THE METER PIT MUST BE BROUGHT UP TO FINISH GRADE.
F. NO OUTLETS ARE ALLOWED BETWEEN METER AND THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER WITH THE EXCEPTION OF ONE SCREW PLUG-IN TAP FOR WINTERIZING/DRAINAGE PURPOSES.
G. THE UNDERGROUND WATER SERVICE SHALL BE K-COPPER UP TO THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER.
H. THE INSTALLATION SHALL BE INSPECTED BY THE CITY.

INSTRUCTIONS FOR THE INSTALLATION OF IRRIGATION METERS AND BACKFLOW PREVENTERS FOR IRRIGATION SYSTEMS.
A. MAKE A DRAWING OF THE PROPOSED IRRIGATION SYSTEM, THIS DRAWING IS TO BE APPROVED BY THE CITY.
B. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY STANDARDS FOR "TAPS, SERVICES AND METERS".
C. GET NECESSARY PERMITS.
   1. TAPPING PERMIT
D. THE CONTRACTOR MUST BE REGISTERED WITH THE MIAMI COUNTY HEALTH DEPARTMENT.
   1. THE CONTRACTOR MUST OBTAIN A PERMIT TO INSTALL AND PAY ALL APPLICABLE FEES TO THE COUNTY HEATH DEPARTMENT PRIOR TO INSTALLATION.
   2. A PLUMBER WITH AN OHIO LICENSE/BACKFLOW CERTIFICATION MUST BE OBTAINED TO INSTALL AND TEST BACKFLOW DEVICES.
E. AFTER THE BACKFLOW PREVENTERS HAVE BEEN INSTALLED, PLEASE FILL OUT THE FORMS COMPLETELY WITH THE OWNER/LEASE HOLDER'S, ADDRESS (WHERE THE BACKFLOW PREVENTER WAS INSTALLED), LOCATION OF THE BACKFLOW PREVENTER, SIZE, MAKE, MODEL TEST RESULTS BY A LICENCED PLUMBER, ANNUAL TEST RESULTS THERE AFTER, AND SERIAL NUMBER OF THE BACKFLOW PREVENTER, PLEASE RETURN THE COMPLETED FORMS TO THE CITY AND MIAMI COUNTY HEALTH DEPARTMENT.
F. CONTACT THE CITY UNDERGROUND UTILITY DEPARTMENT AFTER THE WORK HAS BEEN COMPLETED. BACKFLOW PREVENTERS HAVE TO BE INSPECTED BY THE CITY.
G. SEPORATE VALVES, ONE BEFORE AND AFTER, MUST BE PLACED NEAR THE BACKFLOW PREVENTER WHENEVER THE EXISTING BACKFLOW IS REMOVED.
YARD MAIN SYSTEM ARRANGEMENT

- **VALVE AND HYDRANT**
- **SPRINKLER RISERS**
- **DOUBLE DETECTOR CHECK VALVE ASSEMBLY (ASSE 1048) WITH DETECTOR CHECK AND APPROVED INDICATING VALVES.**
- **PROPERTY LINE**
- **CITY WATER MAIN**

YARD HYDRANT

- **HOSE VACUUM BREAKER ASSE 1020 ASSC 1011 LABEL**
- **NON-POTABLE MUST MEET CURRENT EPA REGULATION O.A.C. 3745-95-09**
- **PRESSURE TYPE VACUUM BREAKER ASSE 1013**
- **WASHED GRAVEL**
- **DUAL CHECK BFPD ASSE 1020 or 1013**
- **METER**

SPRINKLER SYSTEM

- **SPRINKLER HEADS**
- **DRIP VALVES AT LOWEST POINT**
- **ZONE SHUT-OFF VALVE**
- **ZONE CONTROL VALVE**

CONDITIONS

A. SHUT-OFF VALVES ARE ALLOWED DOWNSTREAM OF THE BFPD.
B. THE PRESSURE TYPE VACUUM BREAKER MUST BE A MINIMUM OF 12 INCHES ABOVE THE HIGHEST SPRINKLER HEAD.

NOTES

A. SEE “STANDARDS FOR TAPS, SERVICES AND METERS” FOR TYPICAL NOTES.
B. BACKFLOW PREVENTION DEVICE IS REQUIRED TO MEET CURRENT EPA REGULATIONS.
C. PROVIDE APPROVED DRAIN FOR IRRIGATION SYSTEM.
D. ALTERNATE DESIGNS MUST BE SUBMITTED FOR APPROVAL.
E. THE CURB BOX MUST BE BROUGHT UP TO FINISH GRADE.
F. NOT OUTLETS ARE ALLOWED BETWEEN METER AND THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER WITH THE EXCEPTION OF ONE SCREW PLUG-IN TAP FOR WINTERIZING/DRAINAGE PURPOSES.
G. THE UNDERGROUND WATER SERVICE SHALL BE K-COPPER UP TO THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER.
H. THE INSTALLATION SHALL BE INSPECTED BY THE CITY.

REQUIREMENTS FOR YARD HYDRANTS (O.A.C 3745-95-09)

A. YARD HYDRANTS WITH WEEP HOLES ARE PROHIBITED

ARE NOT PROHIBITED PROVIDED:

1) THE DEVICE IS ACCEPTABLE TO THE PUBLIC WATER SYSTEM TO WHICH IT WILL BE CONNECTED.
2) ALL OF THE BACKFLOW AND CROSS-CONNECTION REQUIREMENTS OF THIS CHAPTER OF THE ADMINISTRATIVE CODE ARE MET.
SERVICE TEES ARE PERMITTED IF

A. SHOWN ON AND APPROVED SET OF CONSTRUCTION DRAWINGS.

B. 4 INCH MINIMUM BRANCH AND SERVICE LINE WITH GATE VALVE WITHIN 3 FEET OF MAIN.

C. 6 INCH FIRE LINE MAY HAVE A ONE-INCH DOMESTIC TAP AND 8 INCH FIRE LINE MAY HAVE A 2 INCHES DOMESTIC TAP. ALL DOMESTIC TAPS MUST BE INSTALLED BEFORE THE FIRE SPRINKLER RISER.

2" FIRE LINE SERVICE
(METER REQUIRED)

- WATER MAIN
- CLASS 52 DUCTILE ALL UNDERGROUND JOINTS RESTRAINED
- TAPPING VALVE AND SLEEVE IN 5-1/4" VALVE BOX

4" AND LARGER FIRE LINE SERVICE
(METER REQUIRED)

- PRIVATE FIRE HYDRANT (MIN. 6" SERVICE)
- WALL/POST INDICATOR VALVES SHALL BE ADDED ON PREMISES AT FIRE DEPARTMENT REQUEST

CITY OF PIQUA
ACCESS Engineering Solutions

2" FIRE LINE AND 4" AND LARGER FIRE LINE
GENERAL NOTES

A. FIRE LINE AND HYDRANT INSTALLATION, TESTING AND MATERIALS SHALL BE THE SAME SPECIFICATIONS AS STATED IN THE CONSTRUCTION STANDARDS AND DRAWINGS. THESE CONSTRUCTION STANDARDS AND DRAWINGS SHALL ALSO BE FOLLOWED FOR WATERLINE EXTENSIONS ON PRIVATE PROPERTY THAT WILL PROVIDE FIRE LINE OR DOMESTIC WATER SERVICE.

B. CITY OF PIQUA LINE REVIEW FORMS SHALL BE COMPLETED WITH TWO SETS OF PLANS FURNISHED TO THE CITY UNDERGROUND UTILITIES DEPARTMENT.

C. CITY OF CERTIFIED I.S.O. TEST SHALL BE NOT BE CERTIFIED TO THE STATE OF OHIO UNTIL THE FOLLOWING ITEMS HAVE BEEN COMPLETED.
   1. ONE SET OF DRAWINGS FURNISHED TO THE ENGINEERING DEPARTMENT.
   2. FIRE LINE INSTALLATION FORM SHALL BE COMPLETE.

D. NO ADDITIONAL BOOSTER PUMPS SHALL BE INSTALLED FOR THE DOMESTIC LINE.

ALL MAINTENANCE SHOULD COMPLY WITH THE MOST CURRENT OHIO FIRE CODE AND NFPS 25.

E. FIRE LINE MAINTENANCE SHALL BE PERFORMED BY A CERTIFIED FIRE LINE CONTRACTOR LICENSED THROUGH THE OFFICE OF THE STATE FIRE MARSHALL.

F. TESTING OF FIRE LINES SHALL BE PERFORMED BY A STATE APPROVED FIRE LINE INSTALLER.

SPRINKLER NOTES

A. SUBMIT TO; MIAMI COUNTY BUILDING REGULATIONS DEPARTMENT

B. HYDRAULIC CALCULATIONS FROM THE SPRINKLER SYSTEM DESIGNER SHALL BE SUBMITTED TO THE FIRE DEPARTMENT, WITH SITE PLAN FOR REVIEW.

C. INSTALLATION OF A FLOW SENSOR MONITOR WILL BE REQUIRED TO REPORT TO AN APPROVED MONITORING SYSTEM. (I.E. POLICE, PRIVATE STATION)

D. THERE SHALL BE AN EXISTING OR NEW HYDRANT INSTALLED WITHIN 100 FEET OF THE SIAMESE CONNECTION AND NO CLOSER THAN 25 FEET OF A BUILDING. EXCEPTIONS MUST BE SUBMITTED TO THE CITY FIRE PROTECTION OFFICIALS.

E. A 6 INCH FIRE LINE MAY HAVE A ONE-INCH MAXIMUM DOMESTIC TAP AND AN 8 INCH FIRE LINE MAY HAVE A 2 INCH MAXIMUM DOMESTIC TAP. ALL DOMESTIC TAPS MUST BE INSTALLED BEFORE THE FIRE SPRINKLER RISER.

REVIEW AND FEES
A. FIVE SETS OF SITE PLANS SHALL BE SUBMITTED TO THE CITY UNDERGROUND UTILITY DEPARTMENT TO BE REVIEWED. FIRE DEPARTMENT, ELECTRICAL DISTRIBUTION, CITY ENGINEER, AND THE PLANNING COORDINATOR WILL REVIEW PLANS.

TESTING
A. THE CITY FIRE DEPARTMENT PERSONNEL WILL CONDUCT SELECTIVE FIRE HYDRANT TESTING FOR RESIDUAL PRESSURE. THE TESTING IS DONE ANNUALLY OR WHENEVER NEEDED. PROCEDURES OF THE HYDRANT FLOW TEST ARE FOLLOWED FROM THE FOURTH EDITION OF THE IFSTA MANUAL "WATER SUPPLIES FOR FIRE PROTECTION". TESTING PROCEDURES ARE ON FILE AT THE MAIN FIRE STATION. ALSO SEE PAGE 800-5.
NOTES

A. THE FIRE LINE SHALL BE DEFINED AS "THE LINE FROM THE RISER INSIDE THE BUILDING TO THE FIRST VALVE ON THE SYSTEM"

B. MINIMUM FIRE LINE SIZE SHALL BE 6 INCHES

C. A 1 INCH DOMESTIC TAP CAN BE MADE ON A 6 INCH FIRE LINE AND A 2 INCH DOMESTIC TAP ON A 8 INCH FIRE LINE. TAP MUST BE MADE PRIOR TO BACKFLOW PREVENTOR.

D. A FIRE HYDRANT SHALL BE INSTALLED WITH 100 FEET OF THE STORTZ CONNECTION.

E. FIRE LINE CHANGES SHALL BE BASED ON SIZE OF RISER.

F. CONTRACTOR SHALL INSTALL A REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ON FIRE LINE PRIOR TO RISER.

G. LIMITED AREA SPRINKLERS SHALL BE CONNECTED BEFORE METER.

H. DOMESTIC SERVICE SHALL INCLUDE BACKFLOW PREVENTOR PRIOR TO METER. WATER METER SHALL HAVE A BYPASS AND STRAINER.

I. ALL MATERIAL AND CONSTRUCTION METHODS SHALL CONFORM TO THE CITY STANDARDS.

J. PRIVATE WATER MAIN SHALL REMAIN PRIVATE UNLESS ACCEPTED BY THE CITY AND AN EASEMENT IS GRANTED.

K. ALL FIRE LINES SHALL BE TESTED AT 200 PSI. SEE HYDROSTATIC TEST ON PAGE 800-5 FOR ADDITIONAL REQUIREMENTS. FIRE DEPARTMENT OR THE UNDERGROUND UTILITIES DEPARTMENT IS TO WITNESS THE TEST.
TYPE III - CUT & PLUG DETAIL

EX. W.M.

"H" BEAM BRACE
CAP PLUG

CONC. THRUST BLOCK
CAP PLUG

EX. W.M. ABANDONED

5' MIN.

"L" SEE TABLE

<table>
<thead>
<tr>
<th>DIA.</th>
<th>4&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
<th>10&quot;</th>
<th>12&quot;</th>
<th>16&quot;</th>
<th>20&quot;</th>
<th>24&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;L&quot;</td>
<td>12</td>
<td>26</td>
<td>38</td>
<td>48</td>
<td>66</td>
<td>98</td>
<td>125</td>
<td>145</td>
</tr>
</tbody>
</table>
THE PRESSURE TEST SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF THE CITY OF PIQUA UNDERGROUND UTILITIES REPRESENTATIVE.

THE TEST SHALL BE FOR FIVE (5) MINUTES AT 150PSI FOR CAST IRON PIPE AND 200PSI DUCTILE IRON PIPE.

FOLLOW MANUFACTURES RECOMMENDATIONS FOR TORQUE SETTINGS ON TAPPING SLEEVE.